TITRONIC® and TitroLine
From simple piston burettes to fully automatic titration equipment
Titration by Schott: simple, fast and flexible

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Our know-how to your advantage.

In addition to laboratory glass SCHOTT has been developing and selling electrodes and electrochemical measuring instruments such as pH meters, conductometers and oxygen measuring instruments for more than 60 years.

SCHOTT is also one of the leading manufacturers of titration units such as piston burettes, automatic titrators and specialized Karl Fischer titrators.

Titrations by SCHOTT means:
- reliable and quick results
- product range in a good price/performance relationship
- service and support.

Titration by TITRONIC® basic:

The burette that clicks

The TITRONIC® basic is a good alternative to all bottle top burettes and conventional glass burettes. All manual titrations can be performed in the laboratory, quickly, accurately and safely.

Easy to use

Simply press the ‘mouse’ to begin the titration process. Titrations can be performed at three different speeds.

Dosing Unit

The integrated 20 ml dosing unit with an ultraviolet protection sleeve, fills itself automatically.

Precise dosing technology

The high precision cylinder made of DURAN® borosilicate glass and automatic valve guarantees absolute accuracy.

Stirrer

The magnetic stirrer is connected directly to the burette for power.

Documentation of the results

An easy to read LCD with a large scale display ensures that you can clearly read the results. Connection to a printer or PC through the RS-232-C interface is also possible.

Printer

We recommend using the RS-232-C printer (TZ 3460), although any printer with serial interface can be connected.

Chemically resistant materials

All parts that may come into contact with solvents are manufactured from chemically resistant materials.

Technical data

- Keyboard: Miniature 4-pole round socket
- RS-232-C: For connection of serial printer
- Display: Four digit LCD display, 20 x 48 mm, height of digits: 12.7 mm
- Volume display: 0.00...999.9 ml
- Resolution: 0.01 ml
- Cylinder: 20 ml borosilicate glass
- Dosing accuracy: Systematic error 0.1 %, Random error 0.05 %
- Valve: 3/2-port directional control valve made of PTFE/ECTFE
- Hoses: FEP with UV protection
- Housing material: Polypropylene and Polyflamm RPP 371 NT, 20 % talcum
- Front foil: Polyester
- Dimensions: 134 x 310 x 205 mm (WxHxD), without stirrer
- Weight: approx. 2.1 kg
- Temperature: -10 °C ... +40 °C
- Power supply: 230 V; 50/60 Hz or 115 V; 50/60 Hz
- Consumption: 18 VA
- Safety: Protection Glass II in accordance with DIN EN 61 010, Part 1
- CE Mark: Guideline 73/23/EEC

Motor-driven 3/2-port directional control valve

Unpressurized suction and dosing is possible with this automatic valve which is made of high-grade and high-resistant material. This means the production of gas during the filling of the cylinder is eliminated.
TITRONIC® universal

Everything dosing. Fast and precise.

The TITRONIC® universal not only allows you to perform dosing operations quickly and easily but also accomplishes manual titrating operations without difficulty. The burette can be used with all dosing liquids, solvents and titrants.

Dosing and titrating

The adjustment of any dosing volume and the dosing speed is done simply by pressing a button. For incremental dosing operations, the entry of the volume and the waiting time between the volume increments can be adjusted just as easily and quickly.

Manual titrating operations are performed using the hand control element, whereby 0.01 increments and 7 different titrating speeds are available. In addition, you can also call up a pre-titrating volume prior to each titration in order to reduce the titrating time.

PC control system

All functions of the TITRONIC® universal unit can be controlled via a serial interface (e.g. PC). The address setting is made automatically or manually. For complex dosing and titration processes, the ‘daisy chain’ option can be used to connect up to 16 burettes in series. The units are simply connected to one another via an additional RS-232-C interface. No additional data line is required as each unit is separately addressable and provides feedback information.

Precise dosing technology

The high-precision glass cylinder made of DURAN® borosilicate glass and the motor-driven, chemical resistant compressed-air valve guarantees absolute accuracy.

Motor-driven 3/2-port directional control valve

Unpressurized suction and dosing is possible with this automatic valve which is made of high-grade and high-resistant material. This means the production of gas during the filling of the cylinder is eliminated.

Documentation of results

This is assured by the easy-to-read LCD with its large-scale dialog display, background illumination and contrast adjustment. A printer or PC can be connected using one of the two serial RS-232-C interfaces.

Chemically resistant materials

All parts that may come into contact with solvents are manufactured from chemically resistant materials.

Languages

Four languages are available (German, English, French, Spanish).

Technical data

Keyboard connection Miniature 4-pole round socket, conforming to DIN standards, for the hand control element TZ 3680

Stirrer connection Plug-and-socket connection with integrated low-voltage power supply (15 V DC) for the TM 96 magnetic stirrer

RS-232-C interface no. 1 For connecting a printer with a serial interface or a PC to document the consumption in ml or for data backup

RS-232-C interface no. 2 Connection of additional piston burettes, TITRONIC® universal (‘Daisy Chain’), miniature 4-pole round socket

Configuration of the R6-232-C interface

Adjustable baud rate: 1200, 2400, 4800 or 9600 baud, word length: 7 or 8, parity: no, even or odd, Parity: 2 stop bits

Display

8-line LCD display, 39 x 69 mm, 128 x 64 pixel, background illumination and contrast adjustment

Volume display 0.00...999.9 ml

Dosing volume 0.01...999.99 ml

Dosing speed 0.1...40 ml/min (with 20 ml dosing unit)

Filling time 30 s to 999 s adjustable (100 % in relation to the cylinder volume)

Pre-titrating volume 0.1...99.99 ml

Increment volume 0.01...999.99 ml

Waiting time between the increments 0.1...999.9 s

Cylinder (20 or 50 ml DURAN® borosilicate glass cylinder with UV protection sleeve)

Dosing accuracy Systematic error 0.1 %, Random error 0.05 %

Determined according to EN ISO 8655

Vials 3/2-port directional control valve made of PTFE/ECTFE

Hoses with UV protection

Housing material Polypropylene and Polyflamm RPP 371 NT, 20 % talcum

Front foil Polyester

Dimensions 134 x 310 x 205 mm (W x H x D), including dosing unit, without stirrer

Weight approx. 2.1 kg

Ambient temperature +10 °C ...+40 °C (for operation and storage)

Power supply 230 V~; 50/60 Hz or 115 V~; 50/60 Hz

Power consumption 18 VA

Appliance safety Conforms to Protection Class II in accordance with DIN EN 61010, Part 1

Conformity EN ISO 8665, Part 3
**TitroLine easy**
The automatic pH/mV titrator for everyday routine.

Now you can take advantage of Schott’s many years of titration experience simply by pressing the button on this small Titrator. TitroLine easy for precise and quick pH and mV titrations.

### Three types of titration
For fast and optimal titrations with no additional parameterization, you can carry out titration measurements with a self-selecting end point, with preset end point or manually with the mouse.

### Dosing unit
This integrated 20 ml dosing unit with an ultraviolet protection sleeve fills itself automatically.

### Precise dosing technology
The high-precision glass cylinder made of DURAN® borosilicate glass and the motor-driven, chemical resistant compressed-air valve guarantees absolute accuracy.

### Sensors
We recommend using combination electrodes from Schott. Although pH-combination electrodes with integrated temperature sensor (Pt 1000) or indication and reference electrodes can be utilized.

### Buffer solutions
Schott buffers 2.00/4.00/4.01/6.87/7.00/9.18/10.00/12.45, along with their temperature functions, are stored in the TitroLine easy.

### Technical data
- **Measuring amplifier**: Measuring input pH/mV electrode, pH-input with 12-bit converter for highly accurate resolution of the measuring signal during titration
- **Measuring range pH**: 0.00 ... 14.00
- **Measuring range mV**: -1900 ... +1900
- **Electrode**: BNC socket and reference electrode 1 x 4 mm
- **Measuring input temperature sensor**: Pt 1000
- **Measuring range**: -30°C ... +115°C
- **Connection sockets**: 2 x 4 mm and 1 x 2 mm
- **Keyboard connection**: Miniature 4-pole round socket, conforming to DIN standards for the hand control element TZ 3680
- **Stirrer connection**: Plug-and-socket connection with integrated low-voltage power supply (15 VDC) for the magnetic stirrer TM 96
- **RS-232-C interface**: For connecting a printer with a serial interface or a PC for documentation or for data backup, Miniature 4-pole round socket
- **Configuration of the Preset**: 4800 baud, 7-bit word length, 2 stop bits, no parity
- **RS-232-C interface**: Matrix LCD-Display with 64 x 128 pixels, background illumination and contrast adjustment
- **Volume display**: 00.00 ... 999.9 ml
- **Display resolution**: 0.01 ml
- **Cylinder**: 20 ml DURAN® borosilicate glass cylinder with UV protection sleeve
- **Burette resolution**: 1/8 ml
- **Dosing accuracy**: Systematic error 0.1 %
- **Random error**: 0.05 %
- **Calibration**: Two-point calibration, selection of eight stored buffer solutions in conformity with DIN 19 266 and NBS
- **Hoses**: FEP with UV-protection
- **Housing material**: Polypropylene and Polyflam RPP 371 NT, 20 % talcum
- **Front foil**: Polyester
- **Dimensions**: 134 x 310 x 205 mm (WxHxD), including dosing unit, without stirrer
- **Weight**: approx. 3.4 kg
- **Ambient temperature**: +10 ... +40°C (for operation and storage)
- **Power supply**: 230 V~/50/60 Hz or 115 V~/50/60 Hz
- **Power consumption**: 24 VA
- **Appliance safety**: corresponds to Protection Class II in accordance with DIN EN 61 010, Part 1
- **Conformity**: EN ISO 8655, Part 3
- **CE mark**: In accordance with Council Guideline 89/336/EEC (EMV = electromagnetic compatibility)

### Documentation of the results of measurement
This is assured by the easy-to-read LCD with its large-scale display, background illumination and contrast adjustment. A printer or a PC can be connected at the serial RS-232-C interface.

### Printer
We recommend the printer TZ 3460.

### Chemical resistant materials
All parts that may come into contact with solvents are manufactured from chemically resistant materials.

### Languages
Four languages are available (German, English, French, Spanish).

### Examples of applications for TitroLine easy
- Salt content in food stuffs (cheese, soya sauce, ketchup)
- Total acidity in wine and beverages
- Nitrogen according to Kjeldahl
- Iodometric and other redox titrations
- Alkalinity
- Chloride in drinking water
TitroLine KF
The titrator that finds the water in your sample.

Everything included
The TitroLine KF includes everything you need to determine the water content according to the Karl Fischer method. The measuring set-up consists of titrator, reagent bottle, titration stand, titration vessel, electrodes, and a starter kit (9 syringes with hollow needles, molecular sieve, and three ampoules with water). Everything that you need is included.

We’ll always tell you what comes next
The large display of the TitroLine KF is ideal. The illuminated LCD display allows permanent dialogue with the user. This dialogue of course includes a user interface always telling you which button to press next on every level.

Titrination stand
With the titration stand, titrated samples are removed simply with the press of a button. Another press of the button and fresh solvent is supplied. A magnetic stirrer evenly mixes solvent and sample. The titration vessel is leakproof, so permeation of moisture is totally prevented (→ low “drift”). The detachable glass vessel is easy to clean and available in two sizes.

Methods
The TitroLine KF provides the following methods for you: sample titration, titre water, titre liquid standard, titre tartratedihydrate, blank value oven, and blank value solvent.

Titrination parameters
The methods provided with the TitroLine KF are pre-set with widely used parameters. Any parameter can be changed if required. Pre-titration volumes can be programmed for anticipated high volumes. For slow dissolving samples an extraction time is available. Either drift or time can be used for end criteria. Any KF solvent can be used effectively by varying the current or pole voltage. Titrination time can be varied in the event that a drying oven is being used. Minimum titration times can be programmed for samples that release moisture slowly.

Documentation
In addition to the indication on the display you can document the results by means of a printer in short, standard or GLP format. GLP documentation includes consumption, result, statistics, originally weighed-in quantities, date, time, sample ID, titre, blank value, drift, titration time, method used, titration parameters, calculation formula with the values used and an additional input field for the user name.

Statistics
To assess the constant quality of the analyses mean value, standard deviation, and relative standard deviation can be determined. The mean value of the titre and the blank value are automatically used for the calculation of the sampling results.

Calculation of the results
To calculate the results, two different formulas are used. The appropriate formula is automatically selected and pre-set with the correct values when the method is selected. The units in which the results are indicated can be selected: %, ppm, mg/l, kg/piece, and ml. The titre is always indicated as mg/ml and the blank value always as ml.

Application support
We support you in finding a solution to your application problem. Schott’s application laboratory has many years of experience with KF titration procedures. This practical know-how has been incorporated in the application manual “KF titration in practice”, which is included with the TitroLine KF. Schott has developed an application database. This application database can be ordered separately.

Applicance qualification made easy
This provides effective help in planning, commissioning, routine works, and verification of the KF titrator, especially in the pharmaceutical industry. We also make no secret of the test equipment control for our KF titrator. Even the method validation is included in the application manual in a step-by-step instruction.

Alphanumeric keyboard
The external keyboard TZ.2825 (optional) allows you to enter an alphanumeric sample name. Any PC keyboard with DIN plug can be connected instead of the splash-proof mini keyboard.

Interfaces and PC control
The TitroLine KF is equipped with two RS-232C interfaces. This allows of simultaneous connection of a balance for automatic taking over of the weighing data and a printer. Of course, a PC can also be connected instead of the printer to receive and process the data of the TitroLine KF. The TitroLine KF can also be completely controlled using PC software.
If you need sometimes more than a Karl-Fischer titrator

It is possible to convert this titrator from a volumetric Karl-Fischer titrator into a standard TitroLine alpha for other titrations in a few simple steps by hand.

**Titrations stand**
The TitroLine alpha KF is using the same titration stand as the TitroLine KF. 
(see also page 9 and 10).

**Standard methods**
The methods memory contains 3 KF methods that can be called up immediately from the working memories. Up to 8 individual methods can also be set without difficulty and optimally adapted to each sample.

**Reagents**
All commercially available pyridine-free or pyridine-containing reagents can be used.

**Documentation**
Following the titration process, the calculated result with the proper unit of measure selected then appears in the display. In addition, proper documentation of the results is then also available using a printer or PC. You will be given the print-out of the titration graphs in clearly structured DIN A4 format. At the same time, you will also have many different graph types at your disposal.

**PC connection**
Schott TitriSoft 2.0 titration software can also be used for proper storage of test results and titration graphs or for the purpose of any subsequent recalculations.

### Technical data for TitroLine KF

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder</td>
<td>20 ml made of DURAN® (borosilicate glass 3.3)</td>
</tr>
<tr>
<td>Valve</td>
<td>motor-driven 3/2-way valve made of PTFE / ECTFE</td>
</tr>
<tr>
<td>Hoses</td>
<td>FRP with UV protection</td>
</tr>
<tr>
<td>Dosing accuracy</td>
<td>Systematic error 0.1 %; Random error 0.05 %; Determined according to EN ISO 8655-6</td>
</tr>
<tr>
<td>Display</td>
<td>LCD 69 x 39 mm, 64 x 128 pixels with background illumination, contrast adjustable</td>
</tr>
<tr>
<td>Electrode</td>
<td>connection for double platinum electrode; output voltage 100 mV, adjustable between 5 ... 200 mV by means of software; connection: 2 x 4 mm sockets</td>
</tr>
<tr>
<td>Keyboard</td>
<td>5-pole DIN socket for TZ 2825 and PC keyboards with DIN plug</td>
</tr>
<tr>
<td>RS-232-C interfaces</td>
<td>two bidirectional RS-232-C interfaces for PC/printer and balance/appliances</td>
</tr>
<tr>
<td>Power supply</td>
<td>mains: 230 V~, 50/60 Hz; or 115 V~, 50/60 Hz; power consumption: 30 VA</td>
</tr>
<tr>
<td>Housing</td>
<td>Polypropylene</td>
</tr>
<tr>
<td>Front foil</td>
<td>Polyester</td>
</tr>
<tr>
<td>Dimensions</td>
<td>310 x 265 x 205 mm (H x W x D) with titration stand TM KF and titration vessel 310 x 135 x 205 mm (H x W x D), height inclusive of dosing unit (without titration stand)</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 3.2 kg for complete appliance with titration stand; approx. 2.1 kg for basic appliance</td>
</tr>
<tr>
<td>Climate</td>
<td>ambient temperature: +10 ... +40 °C for operation and storage</td>
</tr>
</tbody>
</table>

Subject to technical changes.

DURAN is a registered trademark of the SCHOTT group, Mainz, Germany.

### Technical data for TitroLine alpha KF

please refer to page 13
TitroLine alpha
The fully-equipped titrator. Compact, flexible and professional.

Compact, space-saving titrator
TiroLine alpha is a fully-equipped titrator with an integrated burette module.

Working memories
The titration parameters for numerous applications have been preset. Individual applications can be selected from a range of more than one hundred. In this way the TitroLine alpha offers operators at all training levels the possibility of carrying out titrations using optimal parameters and without wasting time. Alternatively, operators can also enter their own individual methods into the working memories.

Titrations at all levels of difficulty
The TitroLine alpha is a routine titrator for pH, mV, redox, argentometric, Karl Fischer and pH-stat titrations. The powerful input amplifier can even perform critical applications, such as the determination of the acid or base numbers in oils (TAN, TBN) or other titrations in non-aqueous solvents.

Adaptation to every application
The pre-selected methods contain an optimal adaptation to each particular application. Reagent addition is drift-controlled, either in linear steps or with dynamic adaptation.

Equivalence point titrations
Up to 5 equivalence points can be detected automatically.

End point titrations
Up to 2 pre-selected end points can be titrated.

Method documentation
By specification of
- alphanumeric method name
- alphanumeric sample description
- username
- time and date
- calibration conditions
- automatic or manual weighed-in
- special conditions for Karl-Fischer-titrations, conditioning, control data, end point criteria

Calculation of results
Eight equations are available for each of the eight methods in the working memory, from which one can be selected to calculate the results. Blank values and several factors as well as subtraction of end or equivalence points can be taken into account. In this way calculation of back-titrations, titre determinations, etc. is possible.

Exchangeable Dosing Units
TiroLine alpha is being delivered with either a 10, 20 or 50 ml dosing unit. If titrations with different titration agents shall be performed, the dosing units can be changed easily.

Analytical balances
Direct transfer of weighed-in data is possible by connecting an analytical balance. Up to 30 weighing data can be temporarily stored in the buffer memory of the TitroLine alpha.

Printers
Epson/Dos-compatible printers with parallel (Centronics) or serial (RS-232-C) interfaces can be used.

Technical data
Measuring amplifier
- Electrode input (pH/mV)
  - pH/mV input with 16 bit converter for highly accurate measurement resolution during the titration, Software-controllable signal input delay,
  - Measuring range pH: 0.00...14.00
  - Electrode socket according to DIN 19 262
  - Karl Fischer input
  - Karl Fischer (dead-stop) connection for double platinum electrode;
  - Output voltage: 100 mV, Internally variable (60...220 mV),
  - Measuring range: 0...100 µA; Connection: 2 x 4 mm sockets

Pt-1000 input
- Temperature sensor connection for Pt 1000 Resistance thermometer,
  - Measuring range: -75 °C...+175 °C; Connections: 2 x 4 mm sockets

InterfaceRS-232-C, No.1
- Connection to PC or serial printer for documentation, data protection and external control, 25-pole socket

InterfaceRS-232-C, No.2
- For TW alpha sample changer, analytical balance connection or dosing burettes TITRONIC universal, T 110, T 200 25-pole socket

Rs-232-C, interface configuration
- Baudrate: 1200, 2400, 4800, 9600 Baud, word length 7 or 8 bit,
- stop bits: 1 or 2, Parity: even or odd (pre-set in 4 combinations)

Printer connection
- Centronics interface for connection of a printer with parallel interface, 25-pole socket

Stirrer connection
- For magnetic stirrer TM 125 with connection cable TZ 1581 and mains power supply TZ 1848 or rod stirrer TM 128, 2-pole socket

Keyboard connection
- For mini-PC keyboard TZ 2825 or MF 2 in XT model, 5-pole DIN socket

Display
- LCD multifunction display, 4-line LC-display, approx. 65 x 110 mm
- Measuring value display 4 place, 18 mm high, 4 alphanumeric lines, each 8mm high, Contrast control and background illumination

Burette module
- Selectable from 10 ml, 20 ml and 50 ml dosing modules

Incremental steps
- 1/5000

Cylinder
- DURAN® borosilicate glass with UV protection sleeve

Housing material
- Stainless steel/polypropylene, reinforced with glass beadlets, inside metallized for screening purposes

Front foil
- Polyester

Housing dimensions
- 148 x 310 x 210 mm (W x H x D) with cylinder

Weight
- 3.5 kg

Ambient temperature
- -5...+40 °C (for operation and storage)

Power supply
- 100...240V ± 10 % (47...63 Hz)

Power consumption
- 35 VA
TW alpha sample changer
Automatic titration in series

Now that GLP and ISO 9001 have been adopted, the number of samples obtained is constantly rising. The new TW alpha from Schott will help you to meet these additional requirements. Our sample changer enables you to titrate in series with automatic sample changing.

If you need further details:

Control
The sample changer has a number of commands to help you control it with our Titroline alpha titrator by way of the TZ 1594 connection cable, which is directly connected to the two devices.

Flexibility as a result of a removable sample divider
In order to increase flexibility, you have four sample dividers and various titration heads for different beakers or titration vessels at your disposal. A mere flick of the wrist is sufficient to change the sample dividers at any time.

Washing the electrode and the titration tip
In order to be sure of obtaining accurate results, it is necessary to clean the electrodes and the titration tip after each titration. This can be accomplished by immersing the electrode and the titration tip in a washing solution, for instance. The number of washing positions to be used (up to a maximum of three) is set in the method. After titration, the sample changer runs automatically into the position(s) intended for this purpose. Connecting a TP 20 washing unit can speed up the washing of the electrode and titration tip and make it more direct. Then the titration vessel will be cleaned immediately after titration.

The size of the divider is set in the method on the Titroline alpha.

Stirring from ‘above’ or ‘below’
The basic sample changing unit has a magnetic stirrer installed as a standard feature, enabling stirring from ‘below’. Depending on the application, the stirring speed can also be changed. Alternatively, you can use a rod stirrer (with two different lower lengths) which enables stirring from ‘above’. 
TitriSoft 2.0
The optimum solution for your titration tasks
Endless configurations

The titration software, TitriSoft 2.0, is the optimum solution for your titration tasks. Using the software, which operates under WINDOWS 95 and WINDOWS NT, you can connect various Schott equipment units (hardware configurations) to the PC in your laboratory in order to support and simplify your daily work procedure during sample preparations, titrations and evaluation of results. The structure of the software was selected so that it is clear and logical to users of all training levels.

During the installation step, TitriSoft 2.0 automatically recognizes whether you are working with a German or an English WINDOWS version and will then install the correct language version on its own. For all other languages, the English is automatically installed.

Connection Options
TitriSoft 2.0 allows you to control the following equipment:
- titrators (TitroLine alpha)
- sample changers (TW alpha)
- burettes (TITRONIC® universal, TITRONIC® T 200 and TITRONIC® T 310)
- additional Schott equipment units (TW 280, TR 250)
- balances

The titration software can be connected to any serial port that is not being used on your PC. Each of these serial interfaces can be used for various equipment combinations (configurations). For proper automation of titrations, the TitroLine alpha with our sample changer TW alpha, for example, is controlled by the software. For more complex titration tasks including sample preparation, the connected burettes take over the required dosing tasks first and then the titration is carried out with the TitroLine alpha. It is, of course, also possible to use the software exclusively for dosing operations.

The following diagram shows you examples of possible equipment combinations.

Software Structure
The many different software tasks are sub-divided in four different centers
- the Titration Center,
- the Revision Center,
- the Analysis Center and
- the Maintenance Center.

In the main menu, the Navigator, the user is provided with an overview of these centers. In the Navigator menu, service information and using the help button, the software description can also be requested. This on-line help function can be requested anywhere in the program.

Revision Center, import and export
Analysis Center

Revision Center
Titration curves, results and measured values of all completed titrations are saved in the Revision Center. On the basis of the sample identification, data, user, method or status, these data can then be selected and requested. The information on the completed titrations can be displayed as a graphical representation, results list or measured value list. Optimisation according to user requirements can be carried out for each saved titration. This means for instance that subsequent or additional calculations can be added and saved or that titration curves can be analysed. Import (TPC 2000 curves, ASCII) or export (ASCII or Excel) options are also available.

Analysis Center
This is where all titration methods are set up and saved. The eight methods of the TitroLine alpha can be read into program and then be increased by adding additional methods. Your own methods, which have been adapted to your specific titration problem, can also be prepared and saved in unlimited numbers using the PC. Titrations are then controlled by the PC and carried out with the TitroLine alpha. The reagents being used, the calibration data of the sensors being employed, precise sample data, average values and global values (e.g. blank values) can be saved for all these methods. Accordingly, you will then have the sample or method characteristics at your disposal for all methods and can call them up anytime. If the methods saved in the TitroLine alpha are integrated in the configuration, these methods can be expanded with various functions in order to adapt the methods to your requirements in the best possible manner. This usually involves additional calculations or reagent dosing operations but detailed method descriptions, for example, can also be added. Additional important method elements are dosing operations performed with one or several burettes, repetition of individual elements and if instructions, e.g. the use of many different formulas depending on specific consumption rates in each instance.

The method preparation procedure is supported by tips and instructions in order to prevent errors.
Titration Center

Technical Data

This center is your actual workplace. This is where you perform your daily jobs, i.e. where you select the methods, enter the sample identifications and weights and can see the results of the completely titrated samples. For proper configuration of the work lists, you have many different options at your disposal that provide you with a great deal of organisational scope as well. The details of the work list show you the individual methods with their corresponding samples and their characteristics (sample identification, number, sample changer position, status, date, time, results, titration curve graphics and sensor characteristics). During the titration you can observe the titration process by means of an on-line curve. You can, however, simply allow the samples to be processed in the background and use your PC for other tasks or start an additional titration of another configuration on a parallel basis. When working with the sample changer TW alfa, you can adjust various settings such as skipping over blank items, rinsing or waiting options. For the type and form of the documentation, which is in accordance with GLP and ISO 9000 directives, you have the possibility of printouts as a table or list form with curves and in addition of preparing output files (ASCII) or integrating external documentation programs or LIMS export.

Technical data

The following specifications are required to let you work quickly with TitriSoft 2.0 and achieve the best possible results:

- Interface: 1 free serial RS-232-C interface per configuration
- Mouse connection absolutely required
- Computer: Intel Pentium III (MMX or higher)
- Operation system: WINDOWS 95, Windows NT (if 4.0 or higher)
- RAM: at least 32 MB
- Fixed disk: at least 20 MB available memory capacity
- Graphics card: resolution 800 x 600, at least 16 colors
- Printer: all types supported by Windows 95 and Windows NT
- Computer as from Pentium 133 MHz or higher
- RAM at least 32 MB

Ordering Information

This center is your actual workplace. This is where you perform your daily jobs, i.e. where you select the methods, enter the sample identifications and weights and can see the results of the completely titrated samples. For proper configuration of the work lists, you have many different options at your disposal that provide you with a great deal of organisational scope as well. The details of the work list show you the individual methods with their corresponding samples and their characteristics (sample identification, number, sample changer position, status, date, time, results, titration curve graphics and sensor characteristics). During the titration you can observe the titration process by means of an on-line curve. You can, however, simply allow the samples to be processed in the background and use your PC for other tasks or start an additional titration of another configuration on a parallel basis. When working with the sample changer TW alfa, you can adjust various settings such as skipping over blank items, rinsing or waiting options. For the type and form of the documentation, which is in accordance with GLP and ISO 9000 directives, you have the possibility of printouts as a table or list form with curves and in addition of preparing output files (ASCII) or integrating external documentation programs or LIMS export.

Ordering Information

The following specifications are required to let you work quickly with TitriSoft 2.0 and achieve the best possible results:

- Interface: 1 free serial RS-232-C interface per configuration
- Mouse connection absolutely required
- Computer: Intel Pentium III (MMX or higher)
- Operation system: WINDOWS 95, Windows NT (if 4.0 or higher)
- RAM: at least 32 MB
- Fixed disk: at least 20 MB available memory capacity
- Graphics card: resolution 800 x 600, at least 16 colors
- Printer: all types supported by Windows 95 and Windows NT
- Computer as from Pentium 133 MHz or higher
- RAM at least 32 MB

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