

TitroLine® 7000:

Featuring enhanced automation and additional methods

Besides the specifications of the series and the TitroLine® 6000 already mentioned in the introduction, the TitroLine® 7000 provides more functions.

More methods

Do you require simple and easy titration but need more features? The TitroLine® 7000 offers storage of up to 50 user methods.



Measurement and calibration with the highest accuracy

The wireless sensor recognition automatically recognizes SI Analytics ID electrodes and instantly stores dedicated sensor data-eliminating measurement and calibration errors.

Interfaces

Perfect for non-aqueous titrations

Eliminate the need for special electrodes (e.g. separate indicator, reference and auxiliary electrodes) with the built-in amplifier-ideal for titrations in non-aqueous solvents such as:

- Acid and base numbers in oils.
- Titrations in glacial acetic acid with perchloric acid.
- Hydroxyl, NCO (Isocyanate) number and further specific values.

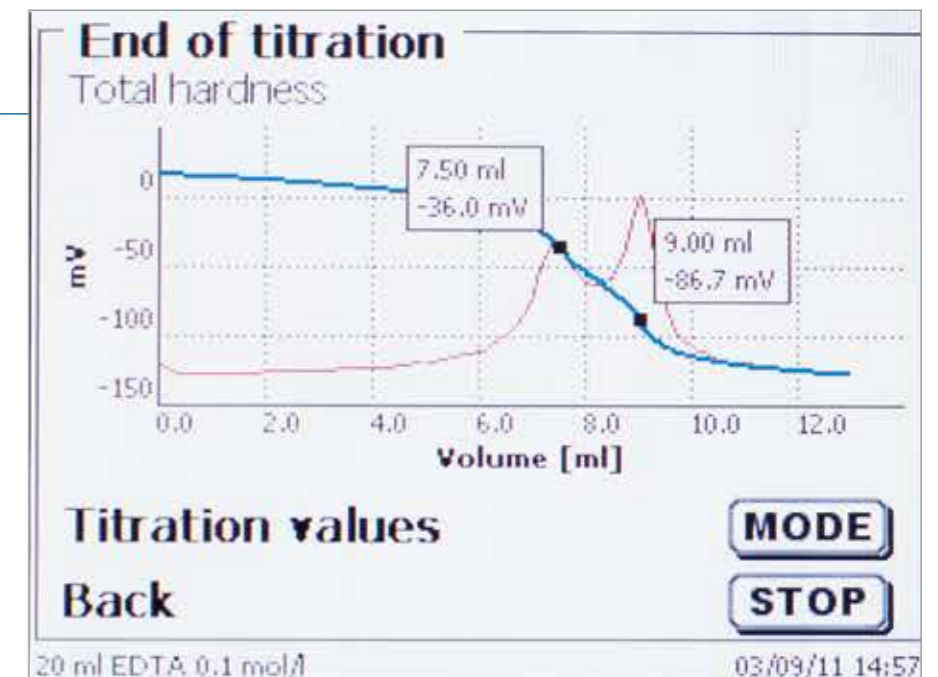
pH Stat Titrations

With a pH stat application, a given pH is first adjusted and then kept constant during the analysis with an acid or a base.

The pH stat titration is often applied to:

- Determination of the enzyme activity (ex. Lipase).
- pH stat elution of soil sample at pH 4.
- Monitoring of the pH value during chemical syntheses.

Titration curve:
Total hardness (Calcium and Magnesium hardness)



Typical application example for two equivalence points: Titration of amino hydrochlorides (method according Ph. EUR).

Up to now the amino hydrochlorides were dissolved in glacial acetic acid, the amines released through the addition of mercuric acetate and titrated with perchloric acid in glacial acetic acid.

According to the environmentally friendly method of the European Pharmacopeia the amino hydrochlorides are dissolved in ethanol and being dosed with exact 5.00 ml of a 0.01 mol/l HCl. This mixture is then titrated with NaOH 0.1 mol/l. Most titration curves show two equivalence points. The result is calculated from the difference between the first and second equivalence point.

This method, with all parameters and calculation formulas, comes standard in the TitroLine® 7000 and can be used after the input of equivalent substance weight.

More equivalence points to expand application possibilities

Yes, it is now possible to detect and calculate up to two equivalence points during one titration with the TitroLine® 7000. It is possible to determine both the calcium and magnesium hardness individually in a single step, instead of the total hardness combined.

Applications Overview



Water and Wastewater Analysis

Application	TITRONIC® 500 (manual)	TitroLine® 6000 (manual or automated)	TitroLine® 7000 (manual or automated)
Alkalinity (p+m-value)	■	■	■
COD	■	■	■
Permanganate index	■	■	■
FOS/TAC	■	■	■
Kjeldahl-nitrogen/ammonia (after distillation)	■	■	■
Chloride in drinking and wastewater	■	■	■
Chlorine in drinking water	■	■	■
Calcium and magnesium hardness (2 equivalence points)	■	-	■
Total hardness (Sum Ca/Mg; 1 equivalence point)	■	■	■



Food

Application	TITRONIC® 500 (manual)	TitroLine® 6000 (manual or automated)	TitroLine® 7000 (manual or automated)
Total acidity in wine and soft drinks	■	■	■
Total acidity in food (ketchup, salad dressing)	■	■	■
Acidity in bread and sourdough	■	■	■
Ash alkalinity	■	■	■
Chloride ("salt") in food and mineral water	■	■	■
Sulfurous acid (SO ₂), free and total	■	■	■
Volatile acids	■	■	■
Titrateable acidity in milk (Soxlet Henkel (SH) index)	■	■	■
Reducing sugars	■	■	■
Ascorbic acid (vitamin C)	■	■	■
Calcium in milk and dairy products	■	■	■
Calcium and magnesium in mineral water	■	-	■
Formol index	■	■	■
Nitrite in pickling salt	■	■	■
Iodine number	■	■	■
Peroxide number	■	■	■
Saponification number	■	■	■
Acidity (FFA) in fats and oils	■	■	■



Industrial Products

Application	TITRONIC® 500 (manual)	TitroLine® 6000 (manual or automated)	TitroLine® 7000 (manual or automated)
Titration of strong acids and bases (1 equivalence point)	■	■	■
Phosphoric acid (2 equivalence points)	■	■	■
Hydroxyl number	■	■	■
NCO (Isocyanate) number	■	■	■
Epoxy number	■	■	■
Acid number in resins and other industrial products	■	■	■
Acidity in oils (TAN, max. 2 equivalence points)	■	-	■
Total base number (TBN) in oils	■	-	■



Miscellaneous Applications

Application	TITRONIC® 500 (manual)	TitroLine® 6000 (manual or automated)	TitroLine® 7000 (manual or automated)
Surfactants	■	■	■
Metals (redox)	■	■	■
Metals (zinc, copper..., complexometric)	■	■	■
Titration with perchloric acid (non aqueous titrations)	■	■	■
Potentiometric titration to 1 equivalence point (general)	■	■	■
Potentiometric titration to 2 equivalence points (general)	■	-	■

- Excellent application suitability
- Manual titration must be evaluated for this application
- Titration is possible for this application with restrictions and must be evaluated

TitriSoft 3.0 – convincingly simple ...

The TitriSoft 3.0 titration software is the optimum solution for your titration tasks. The software can be used with Windows XP, Vista and 7 and supports your daily work procedures during sample preparation, titration and evaluation of the results. The software has been developed to be clear, logical and user-friendly.

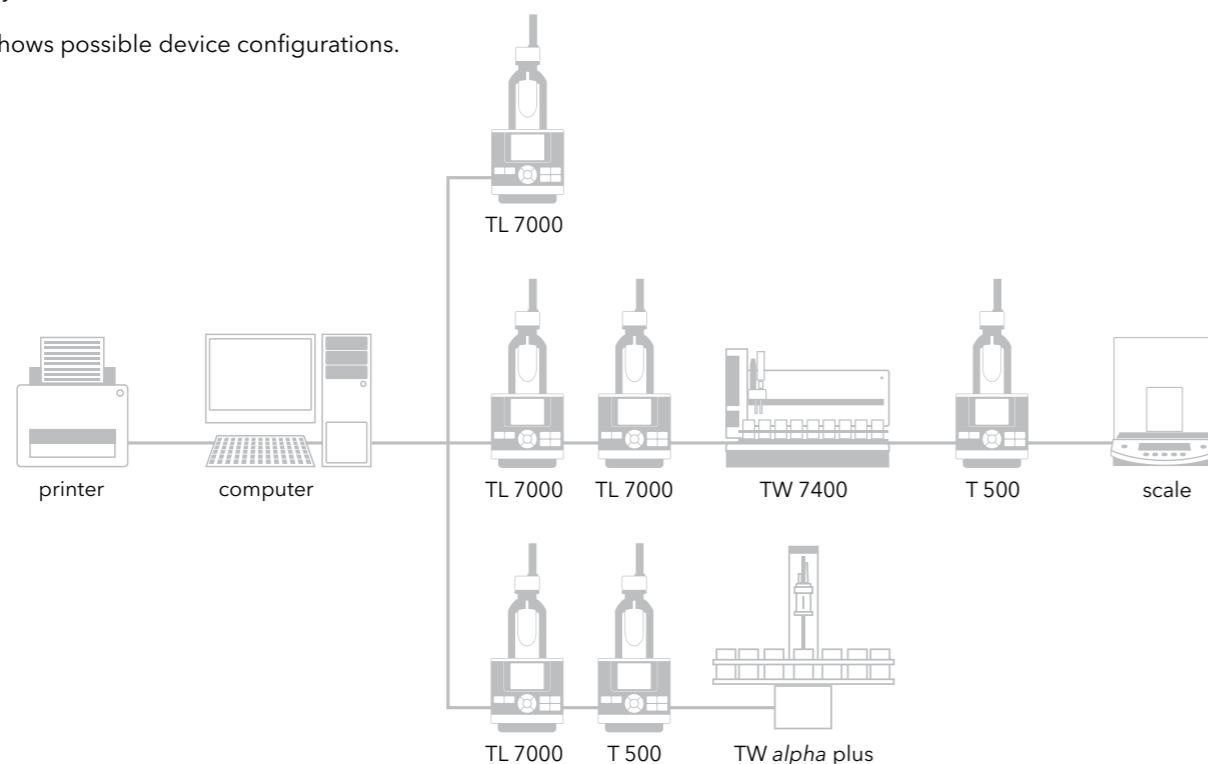
Connection possibilities

Using TitriSoft 3.0 you can control the following devices from a PC:

- **Titration** (TitroLine® 7000, 7750, 7500 KF, 7500 KF *trace* and TitroLine® *alpha plus*)
- **Sample changers** (TW *alpha plus*, TW 7400, TW *alpha* und TW 280)
- **Piston burettes** (TITRONIC® 500 and TITRONIC® *universal*, TITRONIC® 110/200 and TITRONIC® 110 *plus*)
- **Balances**

You can connect the titration hardware to any of your PC's available USB-A or serial interfaces. Each of the interfaces allows different combinations of devices (configurations). To automate a titration procedure the software may be used to control the TitroLine® 7000 in connection with the TW *alpha plus* sample changer. For more complex titration tasks with sample preparation you can dose with piston burettes followed by titration with a TitroLine® 7000. Of course, you can also use the software for dosing only.

The image below shows possible device configurations.



System requirements

For optimal and fast working with the TitriSoft 3.0 software your system should be equipped as shown below:

Interface: a free USB or RS232-interface per configuration

Computer: Pentium D (Dual-Core) 2 GHz or higher

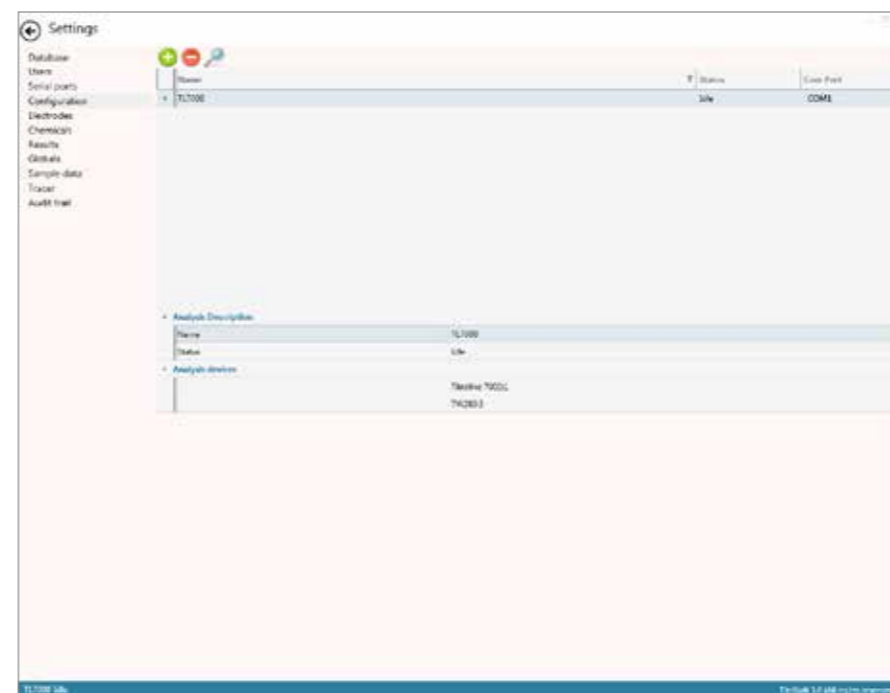
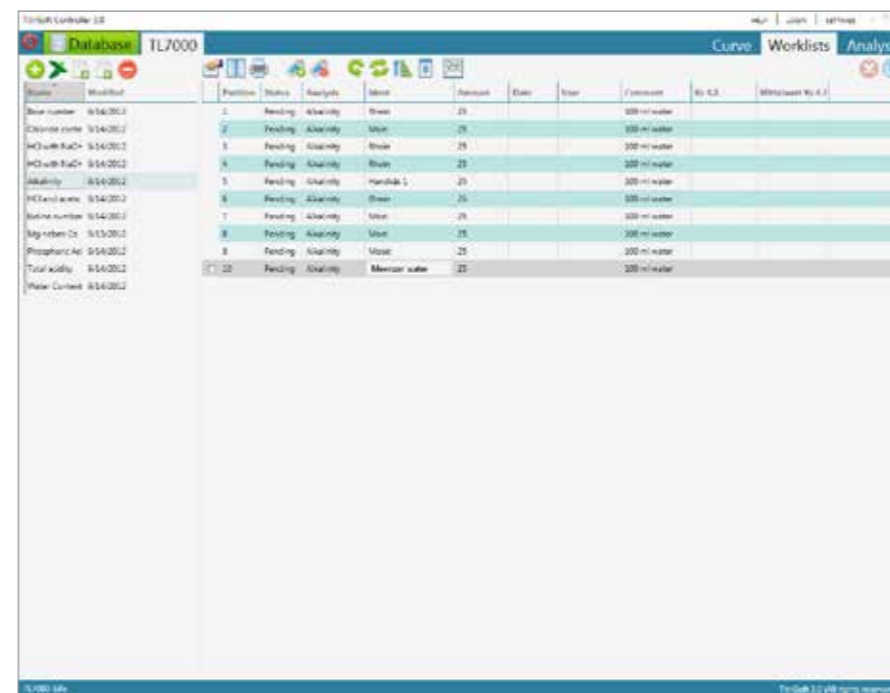
Operating system: Windows XP, Vista or 7

RAM: minimum 2 GB

Hard disk:
minimum free storage volume 200 MB

Graphics card:
minimum resolution 1280 x 1024

... strong benefits ...



»Navigator«, the main menu

The different software tasks are assigned to five different centers:

- Settings,
- Database,
- Analysis,
- Worklists
- Curve

Each of these centers can be chosen at the menu bar.

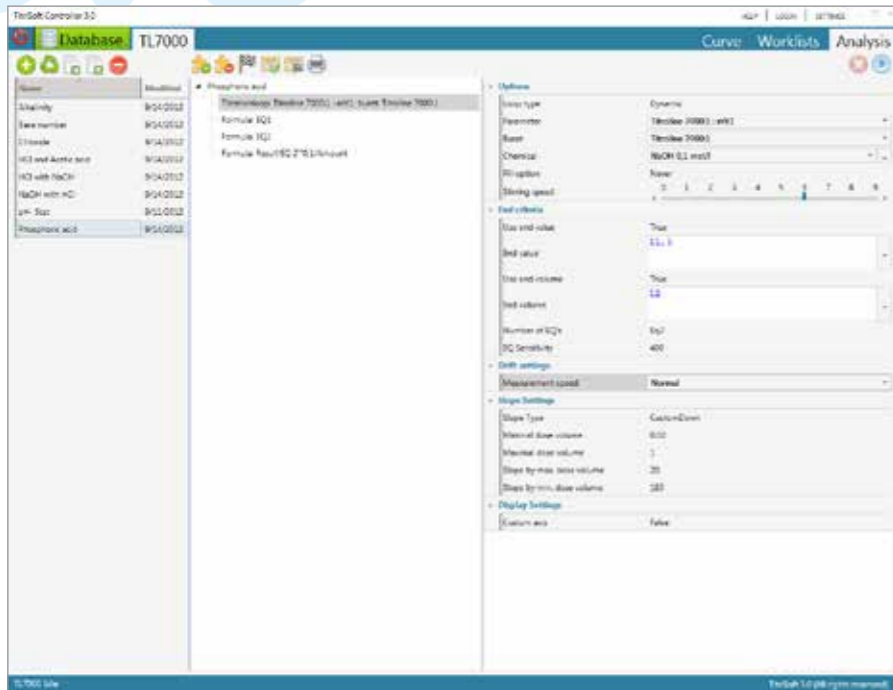
»Settings«, the system configuration

In the system configuration, the software is set up for operation prior to running the first application, i.e. a configuration is set up with the connected hardware. The configuration of the attached hardware is automatically detected in a hardware scan. Each of these hardware configurations allows any number of "methods" and "work lists". Different configurations can work in parallel (see Connection Possibilities).

All TitriSoft users can be listed by their names. TitriSoft supports five user types. The Administrator has access to all configuration and software operation options. The "Administrator" has access to all configuration and software operation options. The "User" or "Advanced User" has the same rights as the Administrator but is not allowed to delete results, methods and worklists. Users are restricted to operation of the Titration Center which very much simplifies matters.

3.0

... clearly structured ...



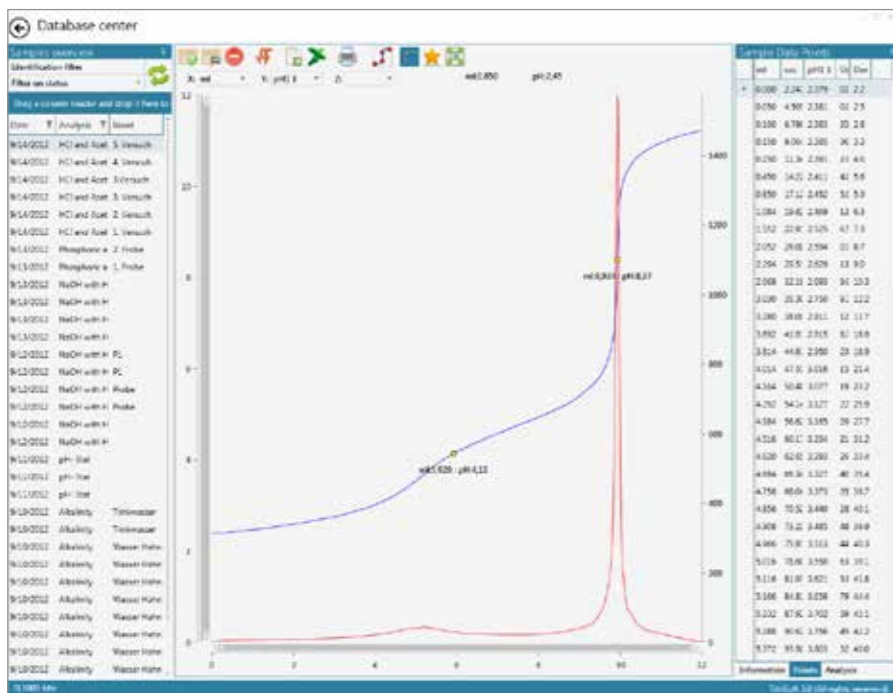
›Analysis, your method center

This is where you set up and save your titration methods. Even complex methods can be installed with a few mouse clicks. Adjustment of the titration parameters is facilitated by the use of symbolic slide controls. Functions such as waiting time, IF loops, repetition, dosings and measurements in addition to the titration parameters and calculation formulas provide virtually unlimited options for method procedures.

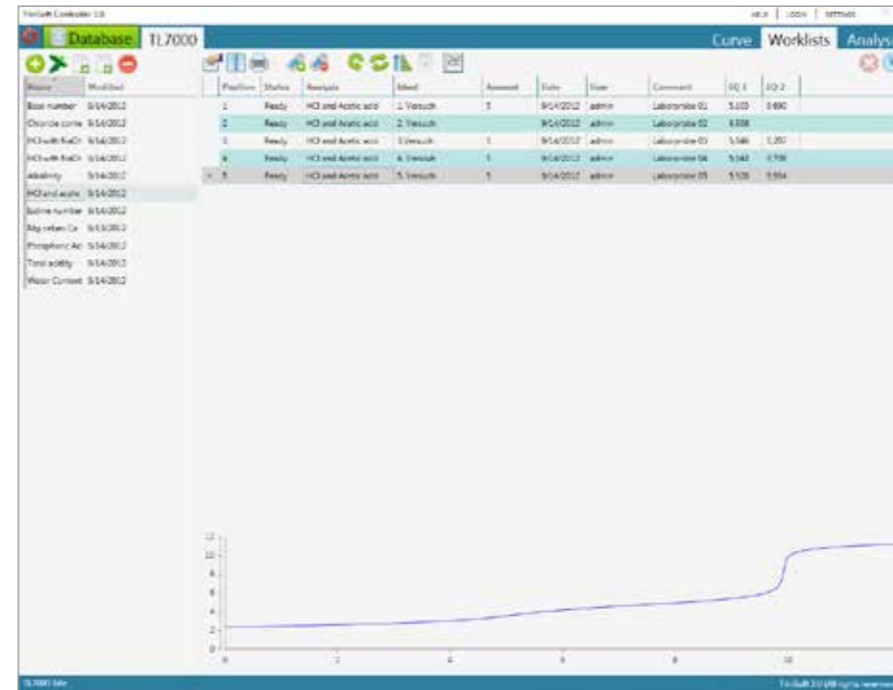
›Database, your database

Titration curves, results, measured values and used methods of all titrations are stored in the database. These data can be selected by sample name, date, user and method and loaded in a few seconds.

Information on titrations performed can be displayed in the form of a diagram, results list or measured value list. You can optimize stored titration information in accordance with your requirements, e.g. add and store subsequent calculations or analyze titration curves and print it out together. Additionally, an export of the data to Excel and ASCII is also available.



... highly productive: TitriSoft 3.0



›Worklists, your clearly structured workplace

›Worklists is the place where you carry out your daily jobs, i.e. select methods, enter sample names and origin weighed-in quantities, start the work list and display (and print if desired) the results at the end of a titration. The work list shows the individual samples with the associated methods and their characteristics such as sample name, number, status, date, time, results and events and other freely configurable sample data, e.g. density.

During the process you can follow the titration under „curve“ or directly via the worklist. You can, however, simply allow the samples to be processed in the background and use the PC for other tasks or start an additional titration with another configuration in parallel.

When working with the TW *alpha* plus and TW 7400 sample changer, you can adjust various settings such as skip empty items, rinse and waiting options.

Documentation, which is in accordance with GLP and ISO 9000 directives, can be produced in a number of different forms; tables, lists, curves or individual print-outs with curves. In addition results can be saved in ASCII or CSV format, external documentation programs may be accessed and results transferred directly, e.g. into a LIMS.

TitriSoft

TitriSoft 3.0 P – simply reliable ...

In this case, the "P" stands for "pharmaceutical". The TitriSoft 3.0 P fully meets all requirements of the FDA 21 CFR Part 11 regulation regarding „Electronic Records“, „Electronic Signature“ and „Audit Trail“.

The FDA (i.e. Food and Drug Administration of the USA) 21 CFR Part 11 regulations describe how to deal with electronically stored data ("Electronic Records") and how to prepare electronic signatures ("Electronic Signature"). These regulations are binding for all companies offering medical, pharmaceutical or food products and services in the USA.

System requirements

For optimal and fast working with the TitriSoft 3.0 software your system should be equipped as shown below:

Interface: a free USB or RS232-interface per configuration

Computer: Pentium D (Dual-Core) 2 GHz or higher

Operating system: Windows XP, Vista or 7

RAM: minimum 2 GB

Hard disk: minimum free storage volume 200 MB

Graphics card: minimum resolution 1280 x 1024

Controlled Access

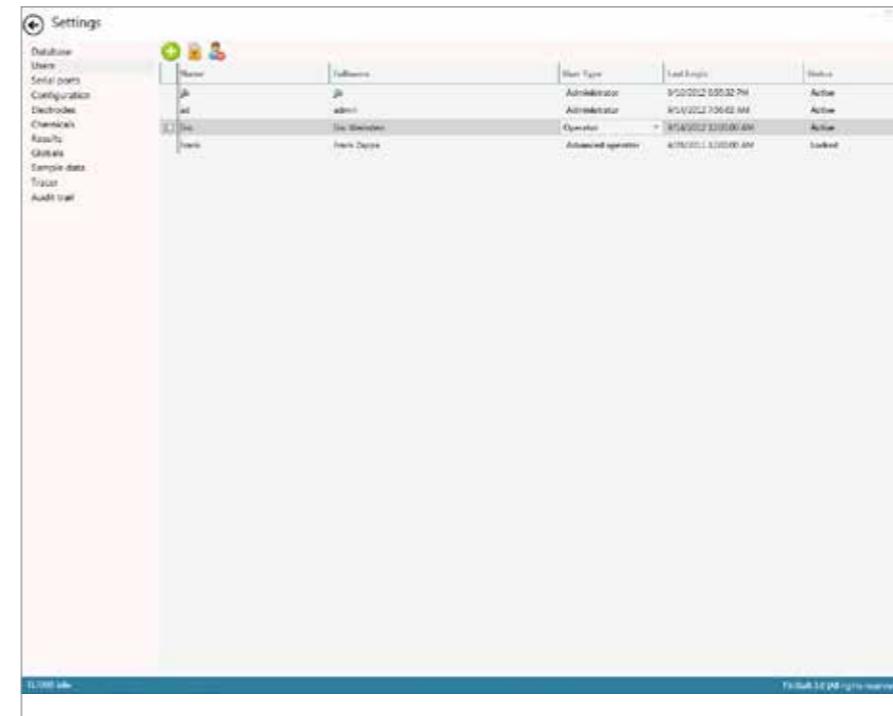
The controlled access guarantees that only authorized individuals have access to the software functions, according to your company's security policy and the FDA requirements.

TitriSoft 3.0 P has 5 different access levels: The "Operator" level does only allow to carry out the routine titrations, whereas the "Advanced User" level is entitled to approve the methods. The highest level, the "Administrator" may set up the users and assign them the user rights. He even has the permission to delete records, but only after a copy of the database has been generated.

3.0 P

Comparison between TitriSoft 3.0 and 3.0 P

Functions	TitriSoft 3.0	TitriSoft 3.0 P
Electronic Record		■
Electronic Signature		■
Audit Trail		■
Controlled Access		■
Copies of Records		■
Manual with forms for SOPs, IQ, OQ, PQ and validation reports		■
Straightforward procedure	■	■
All types of titrations	■	■
Comfortable worklists	■	■
Online titration curves	■	■
Clear documentation	■	■
Perfect titration control by PC	■	■



TitriSoft

Specifications - Piston burettes TITRONIC® 500 and automatic

Titration Titrators TitroLine® 6000/7000/7500 KF/7500 KF trace/7750

Features	TITRONIC® 500	TitroLine® 6000	TitroLine® 7000	TitroLine® 7500 KF	TitroLine® 7500 KF trace	TitroLine® 7750
Display	Color online graphic	Color online graphic	Color online graphic	Color online graphic	Color online graphic	Color online graphic
Measuring input pH/mV with reference input	-	■	■	-	-	■
Wireless electrode recognition	-	-	■	-	-	■
Measuring input Dead stop (2 x 4 mm connector)	-	■	■	■	■	■
Measuring input generator electrode (2 x 4 mm connector)	-	-	-	-	■	-
Measuring input temperature (2 x 4 mm connector)	-	■	■	-	-	■
Interfaces	2 x USB-A, 1 x USB-B 2 x RS232	2 x USB-A, 1 x USB-B 2 x RS232	2 x USB-A, 1 x USB-B 2 x RS232	2 x USB-A, 1 x USB-B 2 x RS232	2 x USB-A, 1 x USB-B 2 x RS232	2 x USB-A, 1 x USB-B 2 x RS232
Balance connection	RS232	RS232	RS232	RS232	RS232	RS232
Printer (USB-A)	HP PCL, Seiko DPU S445, PDF	HP PCL, Seiko DPU S445, PDF	HP PCL, Seiko DPU S445, PDF	HP PCL, Seiko DPU S445, PDF	HP PCL, Seiko DPU S445, PDF	HP PCL, Seiko DPU S445, PDF
Intelligent interchangeable modules (5, 10, 20 and 50 ml)	■	■	■	■	-	■
Burette solution (steps)	10,000	10,000	10,000	10,000	-	10000
Manual titration	■	■	■	-	-	■
Dosing applications	■	■	■	■	-	■
Solution preparation (manual or automatic when connected to balance)	■	■	■	■	-	■
Automatic Titration (Independent without external software)	1)	■	■	■	■	■
Titration to mV and pH end points	-	2 EP	2 EP	-	-	2 EP
Dynamic and linear titration to inflection points (EQ) mV and pH	-	1 EQ	2 EQ	-	-	2 EQ
Particularly suitable for non aqueous titrations	-	-	■	-	-	■
Dead-stop-titration	-	■	■	■	-	■
pH-stat-titration	-	-	■	-	-	■
Water determination according to KF volumetry (10 ppm - 100%, recommended)	-	-	-	■	-	■
Water determination according to KF coulometry (1 ppm - 5%, recommended)	-	-	-	-	■	-
Standard methods	■	■	■	■	■	■
Number of user methods	15	15	50	50	50	50
Connection and control of autosamplers	-	-	■	-	-	■
Can be controlled with TitriSoft 3.0	■	-	■	■	■	■

1) Can be used as titration and dosing burette in automatic titration systems

Specifications – Piston burette TITRONIC® 500

TitroLine® 6000/7000/7500 KF/7500 KF trace/7750

Features	TITRONIC® 500	TitroLine® 6000	TitroLine® 7000	TitroLine® 7500 KF	TitroLine® 7500 KF trace	TitroLine® 7750
Measuring input pH/mV with reference electrode input	–	pH/mV-input with 24 bit transducer Electrode socket according to DIN 19 262 or additional with BNC socket insert	pH/mV-input with 24 bit transducer Electrode socket according to DIN 19 262 or additional with BNC socket insert RFID receiver for SI Analytics ID electrodes	–	–	pH/mV-input with 24 bit transducer Electrode socket according to DIN 19 262 or additional with BNC socket insert RFID receiver for SI Analytics ID electrodes
Measurement range pH	–	-3.0 to 18.00	-3.0 to 18.00	–	–	-3.0 to 18.00
Display resolution pH	–	0.001	0.001	–	–	0.001
Accuracy pH (without sensor probe)	–	0.002 ± 1 Digit	0.002 ± 1 Digit	–	–	0.002 ± 1 Digit
Measurement range mV	–	-2000 to 2000	-2000 to 2000	–	–	-2000 to 2000
Display resolution mV	–	0.1	0.1	–	–	0.1
Measurement input Dead stop (2 x 4 mm socket)	–	Connector (µA) for double platinum electrodes Polarisation voltage variably adjustable from 40 to 220 mV	Connector (µA) for double platinum electrodes Polarisation voltage variably adjustable from 40 to 220 mV	Connector (µA) for double platinum electrodes Polarisation voltage variably adjustable from 40 to 220 mV	Connector (µA) for double platinum electrodes	Connector (µA) for double platinum electrodes Polarisation voltage variably adjustable from 40 to 220 mV
Measurement range µA	–	0 to 100	0 to 100	0 to 100	–	0 to 100
Display resolution µA	–	0.1	0.1	0.1	–	0.1
Accuracy µA (without sensor probe)	–	0.2 ± 1 Digit	0.2 ± 1 Digit	0.2 ± 1 Digit	–	0.2 ± 1 Digit
Measurement input temperature (2 x 4 mm socket)	–	Connector for Pt 1000 resistance thermometer	Connector for Pt 1000 resistance thermometer	–	–	Connector for Pt 1000 resistance thermometer
Measurement range temperature °C	–	-75 to 175	-75 to 175	–	–	-75 to 175
Display resolution °C	–	0.1	0.1	0.1	–	0.1
Accuracy °C (without sensor probe)	–	0.2 K ± 1 Digit	0.2 K ± 1 Digit	–	–	0.2 K ± 1 Digit
Display	3.5 inches -1/4 VGA TFT display with 320 x 240 pixels	3.5 inches -1/4 VGA TFT display with 320 x 240 pixels	3.5 inches -1/4 VGA TFT display with 320 x 240 pixels	3.5 inches -1/4 VGA TFT display with 320 x 240 pixels	3.5 inches -1/4 VGA TFT display with 320 x 240 pixels	3.5 inches -1/4 VGA TFT display with 320 x 240 pixels
Housing material	Polypropylene	Polypropylene	Polypropylene	Polypropylene	Polypropylene	Polypropylene
Front keyboard	Polyester coated	Polyester coated	Polyester coated	Polyester coated	Polyester coated	Polyester coated
Housing dimensions	15.3 x 45 x 29.6 cm (W x H x D), height with interchangeable unit	15.3 x 45 x 29.6 cm (W x H x D), height with interchangeable unit	15.3 x 45 x 29.6 cm (W x H x D), height with interchangeable unit	15.3 x 45 x 29.6 cm (W x H x D), height with interchangeable unit	15,3 x XX x 29,6 cm (W x H x D)	15.3 x 45 x 29.6 cm (W x H x D), height with interchangeable unit
Display resolution °C	–	Polypropylene Polypropylene	Polypropylene	–	–	Polypropylene
Weight	2.2 kg for basic unit 3.5 kg for complete device incl. interchangeable unit (with empty reagent bottle, without magnetic stirrer)	2.3 kg for basic unit 3.5 kg for complete device incl. interchangeable unit (with empty reagent bottle, without magnetic stirrer)	2.3 kg for basic unit 3.5 kg for complete device incl. interchangeable unit (with empty reagent bottle, without magnetic stirrer)	2.3 kg for basic unit 3.5 kg for complete device incl. interchangeable unit (with empty reagent bottle, without magnetic stirrer or TM 235 KF)	2.3 kg for basic unit without magnetic stirrer TM 235 or TM 235 KF	2.3 kg for basic unit 3.5 kg for complete device incl. interchangeable unit (with empty reagent bottle, without magnetic stirrer or TM 235 KF)
Ambient conditions	Ambient temperature: +10 to +40 °C for operation and storage	Ambient temperature: +10 to +40 °C for operation and storage	Ambient temperature: +10 to +40 °C for operation and storage	Ambient temperature: +10 to +40 °C for operation and storage	Ambient temperature: +10 to +40 °C for operation and storage	Ambient temperature: +10 to +40 °C for operation and storage
Material: intelligent interchangeable units (5, 10, 20 and 50 ml)	Valve: PTFE/ETFE Cylinder: borosilicate glass 3.3 (DURAN®) Hoses: FEP, blue	Valve: PTFE/ETFE Cylinder: borosilicate glass 3.3 (DURAN®) Hoses: FEP, blue	Valve: PTFE/ETFE Cylinder: borosilicate glass 3.3 (DURAN®) Hoses: FEP, blue	Valve: PTFE/ETFE Cylinder: borosilicate glass 3.3 (DURAN®) Hoses: FEP, blue	–	Valve: PTFE/ETFE Cylinder: borosilicate glass 3.3 (DURAN®) Hoses: FEP, blue
Dosiing accury according DIN EN ISO 8655, part 3	Accuracy : 0.15 % Precision: 0.05-0.07 % (Depending on the used interchangeable unit)	Accuracy : 0.15 % Precision: 0.05-0.07 % (Depending on the used interchangeable unit)	Accuracy : 0.15 % Precision: 0.05-0.07 % (Depending on the used interchangeable unit)	Accuracy : 0.15 % Precision: 0.05-0.07 % (Depending on the used interchangeable unit)	–	Accuracy : 0.15 % Precision: 0.05-0.07 % (Depending on the used interchangeable unit)

The right electrode for your titration application

The applicable electrode for the titration application is a decisive factor for the accuracy and reproducibility of the results. In order to support you with selecting the appropriate electrode, we have summarized the according electrodes for the most important applications in the following.



Application	Electrode (w.o. temp.-sensor)	Electrode with integrated. temp.-sensor
Acid-base-titrations		
Aqueous, general strong acid and bases	A 7780	A 7780 1M-DIN-ID
Kjeldahl	A 7780	A 7780 1M-DIN-ID
Alkalinity	N 62, N 61	A 162-2M-DIN-ID
Aqueous, difficult applications	IL-pH-A120MF IL-pH-A170MF	A 162-2M-DIN-ID
Low ionic liquids	IL-pH-A120MF IL-pH-A170MF	A 162-2M-DIN-ID
Small sample amounts	N 5900 A	A 157 IL-MICRO-pHT-A-DIN-N
Titration with sample changer (100-250 ml vessels)	N 65	N 1051 A IL-pHT-A170-DIN-N
Titration with sample changer (50 ml vessels, micro)	N 5900 A	-
Non aqueous acid base-titrations		
TAN (ASTM 664)	N 6480 eth	-
OH-No, NCO-No, FFA saponification No. ...	N 6480 eth	-
TBN (ISO 3771/ASTM 2896)	N 6480 eis	-
Epoxy value	N 6480 eis	-
Titration with perchloric acid/acetic acid	N 6480 eis	-
Precipitation titrations		
Halogenides (chloride, "salt")	AgCl 62, AgCl 62 RG	-
Halogenides, sample changer	AgCl 65, AgCl 62 RG	-
Pseudo halogenides (cyanide ...)	Ag 6280	-
Detergents	TEN 1100*	-
Redox titrations		
General, iodometric, permanganometric, cerimetric	Pt 62 Pt 6280	-
Iodine number, peroxid number	Pt 61	-
COD	Pt 61	-
Sample changer, general	Pt 6580	-
Sample changer, COD	Pt 5901	-
Dead stop (SO ₂ bromine no. ...) general	Pt 1200	-
Dead stop (SO ₂ bromine no. ...) sample changer, general and titration vessels	Pt 1400	-
Dead stop (SO ₂ bromine no. ...) sample changer micro	KF 1100	-
KF-titrations	KF 1100	-
Complexometric titrations		
Water hardness (Ca/Mg separated)	Ca 1100 A*	-
Water hardness, total	Cu 1100 A*	-
Copper, zinc, nickel, alumina ...	Cu 1100 A*	-

* An applicable reference electrode is required: B 2920+ respectively. B 3520+

Ordering information: TITRONIC® 500, TitroLine® 6000/7000/7500 KF/7500 KF trace/7750

Type-no.	Order no.	Description
T 500-M1	285220210	TITRONIC® 500 basic unit with magnetic stirrer TM 235, with stand rod TZ 1510, electrode clamp Z 305, hand controller TZ 3880, power supply 100-240 V
T 500-M2/20	285220220	TITRONIC® 500 basic unit with magnetic stirrer TM 235 and 20 ml exchange unit WA 20, with stand rod TZ 1510, electrode clamp Z 305, hand controller TZ 3880, power supply 100-240 V
TL 6000-M1/10	285220050	TitroLine® 6000 basic unit with magnetic stirrer TM 235 and 10 ml exchangeable unit WA 10, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
TL 6000-M1/20	285220060	TitroLine® 6000 basic unit with magnetic stirrer TM 235 and 20 ml exchangeable unit WA 20, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
TL 6000-M1/50	285220070	TitroLine® 6000 basic unit with magnetic stirrer TM 235 and 50 ml exchangeable unit WA 50, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
TL 6000-M2/20	285220080	TitroLine® 6000 basic unit with magnetic stirrer TM 235 and 20 ml exchangeable unit WA 20, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip. With pH-combination electrode and buffer set.
TL 6000-M2/50	285220090	TitroLine® 6000 basic unit with magnetic stirrer TM 235 and 50 ml exchangeable unit WA 20, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip. With low maintenance pH-combination electrode A 7780-1M-DIN-ID and buffer set.
TL 7000-M1/10	285220140	TitroLine® 7000 basic unit with magnetic stirrer TM 235 and 10 ml exchangeable unit WA 10, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
TL 7000-M1/20	285220150	TitroLine® 7000 basic unit with magnetic stirrer TM 235 and 20 ml exchangeable unit WA 20, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
TL 7000-M1/50	285220160	TitroLine® 7000 basic unit with magnetic stirrer TM 235 and 50 ml exchangeable unit WA 50, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
TL 7000-M2/20	285220170	TitroLine® 7000 basic unit with magnetic stirrer TM 235 and 20 ml exchangeable unit WA 20, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip. With pH-combination electrode and buffer set.
TL 7500 KF 05	285220810	Volumetric KF-Titrator, scope of supply: basic titrator unit, exchange unit WA 05, TM 235 KF titration stand with integrated stirrer and pump, titration vessel TZ 1770, micro double platinum electrode KF 1100 and starter kit, power supply 100-240 V
TL 7500 KF 10	285220820	Volumetric KF-Titrator, scope of supply: basic titrator unit, exchange unit WA 10, TM 235 KF titration stand with integrated stirrer and pump, titration vessel TZ 1770, micro double platinum electrode KF 1100 and starter kit, power supply 100-240 V
TL 7500 KF 20	285220830	volumetric KF-Titrator, scope of supply: basic titrator unit, exchange unit WA 20, TM 235 KF titration stand with integrated stirrer and pump, titration vessel TZ 1770, micro double platinum electrode KF 1100 and starter kit, power supply 100-240 V
TL 7500 KF trace M1	285220860	Module 1, coulometric KF-Titrator, scope of supply: basic titrator unit, generator electrode TZ 1752 without junction + connection cable, magnetic stirrer TM 235, stand rod, titration vessel TZ 1751, micro double platinum electrode KF 1150
TL 7500 KF trace M2	285220870	Module 2, coulometric KF-Titrator, scope of supply: basic titrator unit, generator electrode TZ 1752 without junction + connection cable, TM 235 KF titration stand with integrated stirrer and pump, stand rod, titration vessel TZ 1754, micro double platinum electrode KF 1150
TL 7500 KF trace M3	285220880	Module 3, coulometric KF-Titrator, scope of supply: basic titrator unit, generator electrode TZ 1753 with junction + connection cable, magnetic stirrer TM 235, stand rod, titration vessel TZ 1751, micro double platinum electrode KF 1150
TL 7500 KF trace M4	285220890	Module 4, coulometric KF-Titrator, scope of supply: basic titrator unit, generator electrode TZ 1753 with junction + connection cable, TM 235 KF titration stand with integrated stirrer and pump, stand rod, titration vessel TZ 1754, micro double platinum electrode KF 1150
TL 7750	285220240	Basic unit without magnetic stirrer, with stand rod; TZ 1510, electrode clamp Z 305, hand controller TZ 3880, power supply 100-240 V
TL 7750-M1	285220250	Basic unit with magnetic stirrer TM 2325, with stand rod; TZ 1510, electrode clamp Z 305, hand controller TZ 3880, power supply 100-240 V
TL 7750 KF 05	285220930	TitroLine® 7750 with KF accessories, scope of supply: basic titrator unit, exchange unit WA 05, TM 235 KF titration stand with integrated stirrer and pump, titration vessel TZ 1770, micro double platinum electrode KF 1100 and starter kit, power supply 100-240 V
TL 7750 KF 10	285220940	TitroLine® 7750 with KF accessories, scope of supply: basic titrator unit, exchange unit WA 10, TM 235 KF titration stand with integrated stirrer and pump, titration vessel TZ 1770, micro double platinum electrode KF 1100 and starter kit, power supply 100-240 V
TL 7750 KF 20	285220950	TitroLine® 7750 with KF accessories, scope of supply: basic titrator unit, exchange unit WA 20, TM 235 KF titration stand with integrated stirrer and pump, titration vessel TZ 1770, micro double platinum electrode KF 1100 and starter kit, power supply 100-240 V

Accessories for TITRONIC® 500, TitroLine® 6000/7000/7500 KF/7500 KF trace/7750

Type-no.	Order no.	Description
WA 05	285220300	5 ml exchangeable unit with integrated chip for reagent data, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
WA 10	285220310	10 ml exchangeable unit with integrated chip for reagent data, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
WA 20	285220320	20 ml exchangeable unit with integrated chip for reagent data, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
WA 50	285220350	50 ml exchangeable unit with integrated chip for reagent data, with brown glass bottle for titrant, GL 45 and S 40-bottle adapter, tubes, drip tube and titration tip
TM 235, 115-230 V	285220400	Magnetic stirrer for vessels up to 500 ml, agitator speed infinitely adjustable from 500 - 2000 r/min, for the connection to TitroLine® 6000/7000 and TITRONIC® 500
TM 235 KF, 115-230 V	285220900	Titration stand with pump; Scope of delivery: Basic unit with 1 l DURAN®-reagent bottle TZ 1791, 1 l DURAN®-waste bottle TZ 1792, moisture bottle, tubes and screw threads, power supply TZ 1855 (110 to 240 V)
TZ 1052	285214721	KF-drying stove, 230 V
TZ 1055	285215183	KF-drying stove, 115 V
TZ 1060	285218115	Accessories set for KF drying stove TZ 1052/TZ1055
TZ 1065	285201973	Flowmeter with valve and hose connectors for gas volumes (air, nitrogen) from 50 - 500 ml/min.
TZ 3863	285220480	USB-thermo printer, 112 mm for TitroLine® 6000/7000/7500 KF/7500 KF trace/7750 and TITRONIC® 500
TZ 3864	285220710	Thermal paper for TZ 3863 with very high durability (5 rolls)
TZ 3865	285220440	DIN A4 standard printer, HP PCL-compatible, with USB-connection cable, 230 V

Software TitrSoft 3.0

Type-no.	Order no.	Description
TZ 3071	285220717	Titration software for TitroLine® 7000, TitroLine® 7500 KF/7500 KF trace, TitroLine® 7750 and TitroLine® alpha plus
TZ 3072	285220727	Titration software like Version 3.0, but 21 CFR, part 11 compliant version

Data cable

Type-no.	Order no.	Description
TZ 3840	285220690	USB-connection cable type A (M), USB type B (M), 1,8 m
TZ 3081	1007979	TW alpha plus, Mettler AB-S, PG - balances, 5 m
TZ 3082	1007977	TW alpha plus, Sartorius-balances, 5 m
TZ 3087	1007976	TitroLine® 7000, TitroLine® 7750, TITRONIC® 500 or TITRONIC® universal, TW 7400, 1,5 m
TZ 3091	285223504	TITRONIC® universal, TITRONIC® 500 TitroLine® easy, TitroLine® 6000, 7000, 7500 KF, 7500 KF trace, PC, 5 m
TZ 3092	285223529	TitroLine® 6000,7000, 7500 KF, 7500 KF trace, Sartorius balances
TZ 3094	285223545	TITRONIC® universal, TITRONIC® universal, TITRONIC® 500, TITRONIC® 500, TitroLine® 7000, TitroLine® 7000
TZ 3097	285223578	TITRONIC® universal, TITRONIC® 500 TitroLine® easy, TitroLine® 6000, 7000, 7500 KF, 7500 KF trace, PC 1,5 m
TZ 3099	285223594	TitroLine® 6000,7000, 7500 KF, 7500 KF trace, Mettler AB-S, PG - balances, 1,5 m
TZ 3987	285217860	TitroLine® 7000, TitroLine® 7750, TITRONIC® 500 or TITRONIC® universal, TW 7400, 1,5 m



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