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Piston Burette for Manual Titration

## TITRONIC® 300

TITRONIC® 300: Precise motor-driven burette for titration and dosing, standalone or computer-controlled.

**Features**

- Standard methods for manual titrations and dosing
- Adjust titration rate in five steps for optimal speed and accuracy
- Up to 16 devices can be connected
- Adjustable dosing and filling rate for each method.

| | |
|---|---|
| Dosing Unit | 20 ml; 50ml |
| Dosing Accuracy | According to DIN ISO 8655, part 3:<br>Accuracy: < 0.15 %<br>Precision: < 0.05 % |
| Resolution | 8000 steps |

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All Purpose Burette

## TITRONIC® 500

The ideal piston burette for manual titrations, accurate dosing applications as well as the preparation of solutions.

**Features**

- Brilliant TFT display
- 5, 10, 20 and 50 ml volume capacity
- Connect up to 16 devices
- Store dosing methods with different parameters.

| | |
|---|---|
| Dosing Unit | 5, 10, 20 ml or 50 interchangeable burette units |
| Dosing Accuracy | According to DIN ISO 8655, part 3:<br>Accuracy: < 0.15 %<br>Precision: < 0.05 - 0.07 % (in dependence of the used burette size) |
| Resolution | 20.000 steps |

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Potentiometric Titrations

## TitroLine® 5000

A compact, easty to use titrator for the Food & Beverage industry. Offers standard methods for routine titrations.

**Features**

- Pt 1000 and NTC 30 temperature measurement input
- Linear and dynamic titration to equivalence points
- Titration to pH and mV-end points
- Linear and dynamic titration to equivalence points
- pH/mV-measurement input for pH-, ORP-, silver - and further mV-electrodes

| | |
|---|---|
| pH/mV | pH/mV-input with electrode socket according to DIN 19262. BNC via adapter. |
| pH/accuracy | - 3,0… 17,00 / 0,05 +/- 1 digit |
| mV/accuracy | - 1900…1900/ 1,0 +/- 1 digit |

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Automatic Titration

## TitroLine® 7000

Ideal for potentiometric titration. Perfect choice for food, water/waste water, and environmental analysis applications.

**Features**

- Perfect for non-aqueous titration
- pH Stat titrations
- Single and continuous measuring
- Automatic wireless recognition of SI Analytics ID electrodes
- High resolution pH/mV electrode and temperature inputs for pH, ISE, redox (ORP) or photometric titrations

| | |
|---|---|
| mV/accuracy | - 1900…1900/ 1,0 +/- 1 digit |
| pH/accuracy | - 3,0… 17,00 / 0,05 +/- 1 digit |
| Measuring Input | pH/mV-input with 24 bit transducer. Electrode socket according to DIN 19 262 or BNC with RFID receiver for SI Analytics ID electrodes |

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Volumetric and Karl Fischer Titration

## TitroLine® 7750

Combines the features of the potentiometric titrator TitroLine 7000 and the volumetric Karl Fischer titrator TitroLine 7500.

**Features**

- Interchangeable modules
- Accessories for KF titration
- Stores all relevant reagent and unit data
- Expandable with USB and LAN ports
- Perfect for non-aqueous titration

| | |
|---|---|
| mV/accuracy | - 2000…2000/ 0.1 +/- 1 digit |
| pH/accuracy | - 3.0… 18.00 / 0.002 +/- 1 digit |
| Measuring Input | pH/mV-input with 24 bit transducer Electrode socket according to DIN 19262 or additional with BNC socket insert RFID receiver for SI Analytics ID electrodes |

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Universal Titrator with IDS Technology

## TitroLine® 7800

The TitroLine® 7800 can perform potentiometric titrations with analog and IDS electrodes up to volumetric KF titrations.

**Features**

- Wireless recognition of SI Analytics ID electrodes
- Inputs for pH, ISE, redox (ORP) or photometric titrations
- Second digital measuring socket for pH-, conductivity, ORP sensors (IDS)
- Perfect for non-aqueous titration

| | |
|---|---|
| mV/accuracy | - 2000…2000/ 0.1 +/- 1 digit |
| pH/accuracy | - 3.0… 18.00 / 0.002 +/- 1 digit |
| Measuring Input | pH/mV-input with 24 bit transducer. Electrode socket according to DIN 19 262 or BNC with RFID receiver for SI Analytics ID electrodes |

## TITRONIC® burettes and TitroLine® titrators selection table

| Application | TITRONIC® 300 | TITRONIC® 500 | TitroLine® 5000 |
|---|---|---|---|
| Intelligent interchangable units (5, 10, 20 and 50 ml) | 1) | ■ | 1) |
| Manual titration | ■ | ■ | ■ |
| Dosing | ■ | ■ | ■ |
| Solutions preparation (manually or automatically with connected balance) | – | ■ | – |
| Automatic titration (independent with external software) | 2) | 2) | ■ |
| Applications with TitriSoft | ■ | ■ | – |
| pH/mV titrations „aqueous“ (Alkalinity, hydrochloric acid, citric acid, Kjeldahl…) | – | – | ■ |
| Redox titrations (iodometry, permanganometry….) | – | – | ■ |
| Redox titrations (COD) | – | – | ■ |
| Halide titrations (chloride, “salt“…) | – | – | ■ |

TITROLINE® 5000

| Application | TitroLine® 7000 | TitroLine® 7750 | TitroLine® 7800 |
|---|---|---|---|
| Intelligent interchangable units (5, 10, 20 and 50 ml) | ■ | ■ | ■ |
| Applications with TitriSoft | ■ | ■ | ■ |
| pH-stat-applications (enzyme kinetics, soil samples, biotechnology) | ■ | ■ | ■ |
| Applications with sample changer | ■ | ■ | ■ |
| pH/mV titrations „aqueous“ (Alkalinity, hydrochloric acid, citric acid, Kjeldahl…) | ■ | ■ | ■ |
| pH/mV titrations „non aqueous““ (TAN/TBN, FFA, titrations with perchloric acid…) | ■ | ■ | ■ |
| Redox titrations (iodometry, permanganom-etry….) | ■ | ■ | ■ |
| Redox titrations (COD) | ■ | ■ | ■ |
| Hydrogen sulphide and mercaptans | ■ | ■ | ■ |
| Bromine number | ■ | ■ | ■ |
| Water analysis according to KF Volumetric method (10 ppm – 100 %) | – | ■ | ■ |
| Measuring two parameters at the same time (e.g., pH and Cond) | – | – | ■ |
| Photometric titration (OptiLine 6) | ■ | ■ | ■ |

## Compliant Titration Standards

TitroLine® 7000, TitroLine® 7750, and TitroLine® 7800 can be used for applications compliant with the following standards:

| | | | | |
|---|---|---|---|---|
| ASTM D664 | ASTM D2710 | ASTM D2073-92 | DIN ISO 3771 | AHPA 2320 B. |
| ASTM D974 | ASTM D5776 | ASTM D2074-2007 | DIN ISO 660 | AHPA 4500 D |
| ASTM E1899 | ASTM D1159 | ASTM D4208 | ISO 3681 | AHPA 4500 O C. |
| ASTM D3227 | BS 5711-1979 part 3 | ASTM D512 | ISO 5943 | |
| ASTM D2896 | UOP 163 | BS-EN 196-21 | ISO 8467 | |
| ASTM D1126 | UOP 291 | | | |

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Volumetric Generalist

## TitroLine® 7500 KF

Compact, easy-to-use volumetric titrator for water determination according to KF with an operating range of 0.1 % - 100 % water.

**Features**

- Volumetric KF titration
- Ready to use standard methods for standardization of the titrant and sample titration for 1- and 2-Component KF titrants.
- Statistical functions including average value and relative standard deviation
- Configurable output: Short, Standard with curve, GLP
- Formula editor for individual calculations

| | |
|---|---|
| Measuring input µA/KF: | µA-connector for double platinum electrodes, connection: 2 x 4 mm - sockets), polarisation voltage variably adjustable |
| Interfaces: | 3 × USB (2 x USB-A and 1 × USB-B), 2 × RS-232-C and 1 x LAN |
| Dimensions | 5, 10, 20 ml or 50 ml intelligent interchangeable burette units |

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Specialist for Low Water Contents

## TitroLine® 7500 KF Trace

Compact, easy-to-use coulometric titrator for water determination according to KF with a typical operating range of 1 ppm - 5% water.

**Features**

- Suitable for chemical, petrochemical, pharmaceutical and other industries.
- Coulometric KF titration with automatic drift determination and correction.
- Standard methods for various applications such as water in %, water in ppm, water with KF oven, etc.
- Statistical functions including average value and relative standard deviation.
- Can be used for applications compliant with ASTM D6304-B.

| | |
|---|---|
| Measuring input indicator electrode | Connector for double platium electrode with 2 × 4 mm sockets |
| Measuring input generator electrode | Sockets: 2 × 4 mm, coded in color |
| Interfaces: | 3 × USB (2 x USB-A and 1 × USB-B), 2 × RS-232-C and 1 x LAN |

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| | A 162 (IDS) | N 6480 Eth | Pt 62 RG | AgCl 62 RG | OptiLine 6 | KF 1100 |
|---|---|---|---|---|---|---|
| | ScienceLine pH combination electrodes with temperature sensor | ScienceLine pH combination electrode | ScienceLine Metal combination electrode | ScienceLine Metal combination electrode | OptiLine for Photometrc titrations | ScienceLine Single electrodes: pH glass and metal electrodes |
| Length [mm] | 120 | 170 | 120 | 120 | 132 | 96 |
| Ø [mm] | 12 | 12 | 12 | 12 | 12 | 12 |
| Junction | platinum | ground joint | | | | |
| pH glass | Type A | Type A | Type A | Type A | | Pt |
| Temp range | -5 to +80 | 0 to +40 | -5 to +100 °C | -5 to +100 °C | 0 - 50 °C | -30 to +135 |
| Connector | plug head (IDS plug) | plug head | plug head | plug head | USB-plug A, BNC-plug with BNC-DIN-adapter | fixed cable, 2 x 4-mm plug |
| Sensor, Shape | sphere glass membrane | | Metal Pt, ring, 6 mm Ø | Metal Pt-bearing - silver coated, chlorinated, ring, 6 mm Ø" | | 2 pole, 1 mm Ø |

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Rotary sample changer

## Sample Changer TW 7200

Provides sample trays or racks for up to 24 samples and titration head fittings for a variety of beaker and titrator vessels.

**Features**

- Sample trays from 12 to 48 positions for sample vessels from 28 to 82 mm diameter
- Titration heads and sample trays can be changed in one easy step
- Special designs for special vessels with other diameters available on request
- Increased safety due to automatic recognition of the sample tray.
- pH electrode calibration can be done on the sample changer

| | |
|---|---|
| Dimensions: | 143 x 620 x 505 mm (W x H x D)<br>Sample tray: 450 mm |
| Magnetic stirrer: | 2 fixed magnetic stirrers |
| Sample trays: | From 12 - 48 positions |

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For High Sample Throughput

## Sample Changer TW 7450

A robust and sturdy sample changer particularly suitable for a large number of samples, carried out via the software TitriSoft.

**Features**

- Rack sizes of 42, 48 and 72 positions available
- Titration heads and sample racks can be changed in just a few steps.
- Connection of one pump possible
- Special designs for special vessels with other diameters available on request.
- Very fast and quiet.
- The usable sample vessels have a volume of 50 to 250 ml

| | |
|---|---|
| TW7450-48 | Sample rack with 48 positions is suitable for 100 ml beakers. |
| TW7450-42 | Sample rack with 42 positions can be operated with either 150 or 250 ml beakers. |
| TW 7450 | Basic unit without titration head and sample rack. |

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For Coulometric KF Titration

## Headspace Oven TO 7280 & Sample Changer TW 7650

The headspace oven technique of the TO 7280 allows the separation of the water to be titrated from liquid, solid and semi-solid (paste-like) samples. In combination with the TW 7650 sample changer, up to 49 samples can be analysed.

**TO 7280 Features**

- Automatic lowering and raising of the needle head
- Automatic switching on and off of the air/gas supply
- Can be upgraded to a fully automatic system by connecting the Sample Changer (TW7650)
- Semi-automatic or fully automatic water determination

**TW 7650 Features**

- Up to 49 samples* can be measured
- The start drift can be determined before each sample
- Each sample can be measured at a different temperature
- Can be upgraded to the TO 7280 oven at any time

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PC Titration Software

## TitriSoft 3.5 & TitriSoft 3.5P

TitriSoft 3.5 titration software can be used with Windows 7,8.1 and 10 and supports your daily work procedures during sample preparation, titration and evaluation of the results.

**Features**

- For TITRONIC® 300, TITRONIC® 500, TitroLine® 7000 – 7800 and sample changer.
- Connect titration hardware to any free USB or serial interface of your PC
- All devices connected to the PC can be used in all configurations
- Can be used xclusively for dosing tasks with piston burettes.

| | |
|---|---|
| TitriSoft 3.5 | for TitroLine® 7000, TitroLine® 7500 KF/7500 KF trace, TitroLine® 7750/7800 and TitroLine® alpha plus |
| TitriSoft 3.5P | "P" stands for "pharmaceutical"<br>Same as version 3.5 but 21 CFR compliant |