



1

Titration

SI ANALYTICS - THE FIRST ADDRESS FOR TITRATION

SI Analytics
a **xylem** brand



Overview

1 SI Analytics - the first address for titration



2 Titrators without interchangeable modules; for single use

Burettes: *TitroLine® 5000*
Titrators: *TITRONIC® 300*

3 Our standard models for volumetric titration, with interchangeable modules

Burettes: *TITRONIC® 500*
Titrators: *TitroLine® 7000*



4 Our top models for volumetric and for Karl Fischer titration, with interchangeable modules

Titrators: *TitroLine®7750/7800*

5 Instruments for volumetric and for coulometric Karl Fischer titration

Titrators: *TitroLine® 7500 KF/7500 KFtrace*
Headspace oven: *TO 7280*
Sample changer: *TW 7650*



6 Sample changer for automated titration

Sample changer: *TW2200 and TW7450*



7 Software for TitroLine® titrators:

TitriSoft 3.5 and 3.5 P



8 Titration electrodes, buffer, accessories

ScienceLine
OptiLine

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1. SI Analytics – The First Address for Titration

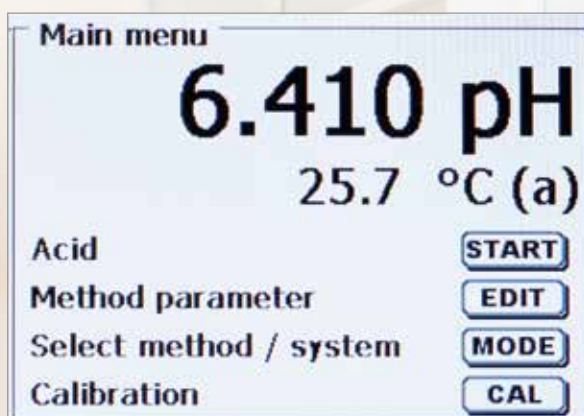
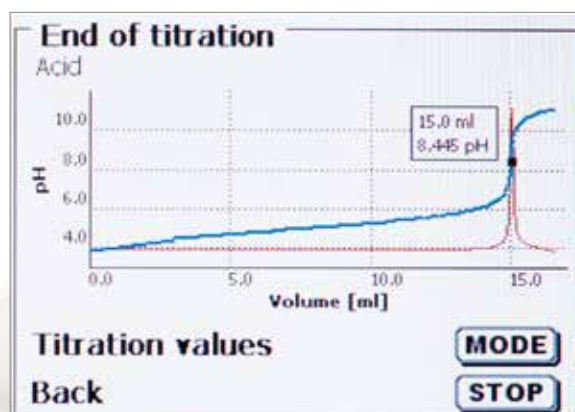
Titration with innovative features

High visibility graphic display

Exceptional high visibility graphic display for viewing even at extreme angles.

Clear graphic representation of titration curves and the first derivative curve (TitroLine®).

Equivalence point values are displayed in the titration curve (TitroLine®).



Intelligent, interchangeable modules for TitroLine 7XXX and TITRONIC 500

TitroLine® 7xxx and TITRONIC® 500 are provided with compact interchangeable modules for switching between different titrations. Size options of 5, 10, 20 and 50 ml are available.

All relevant reagent and unit data are stored in the modules' integrated RFID-chip including:

- Burette size (ml)
- Titrant name
- Titrant concentration or titer value of solution
- Date of manufacture or expiry date of the reagent.



Flexible configuration features

Expand and customize your workstation using up to three USB, one LAN and two RS232 ports for a total of five connection options for:

- Magnetic stirrer TM 235 and USB mouse
- USB printer (Standard A4 HP-PCL) and compact printer TZ3863
- USB keyboard
- Network
- Barcode reader
- USB storage device and hub
- Balance and PC
- other SI Analytics devices



USB printer A4 format



Thermo printer DPU S445



USB manual controller



Keyboard

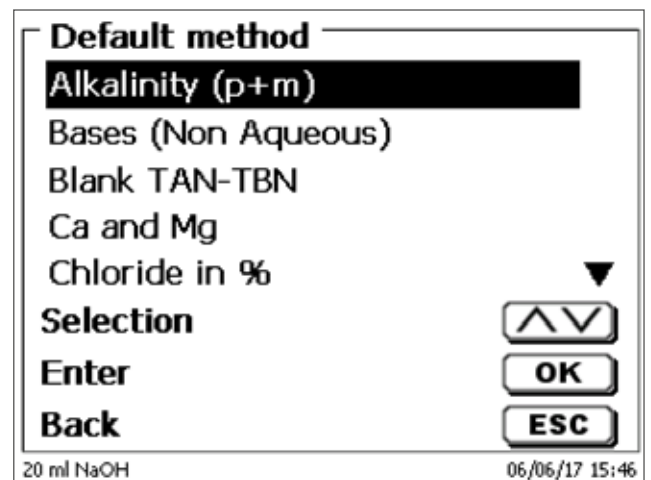
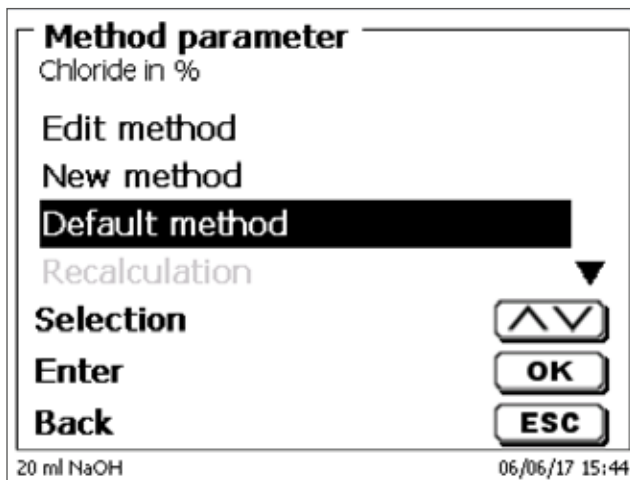
Titrators with innovative features

Standard methods

Each piston burette or titrator has already pre-installed standard methods

The standard methods are loaded and can be used, but also modified.

The preinstalled standard method will always stay retained and can be re-installed at any time.



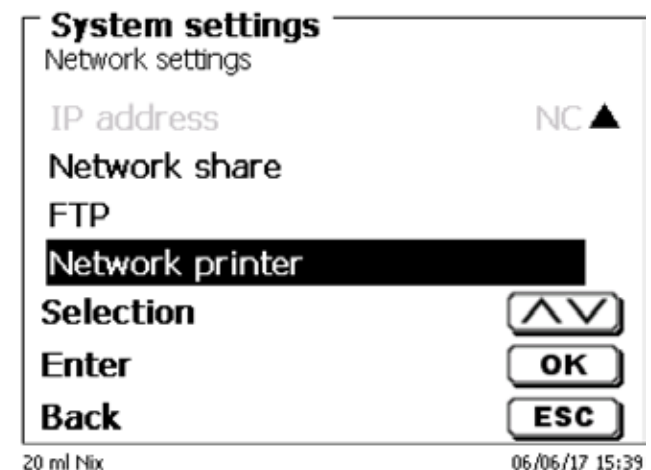
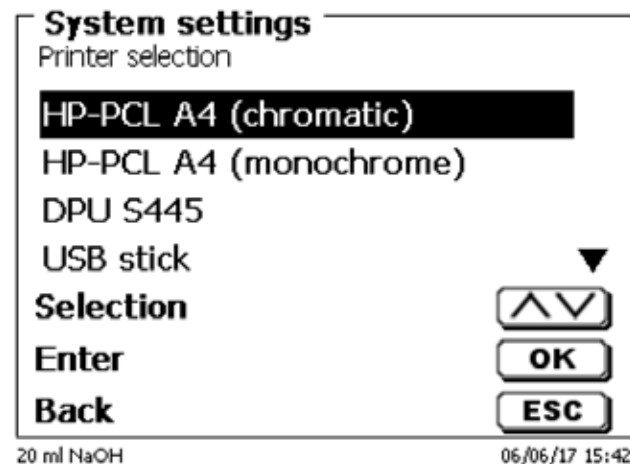
Documentation

The results are documented on a USB device in PDF and CSV format.

The results can also be printed on a DIN A 4 (color or b / w) or on a thermal printer.

The printer can be connected directly to the titrator / piston burette, or it can be printed via a network printer.

When connected to a network, the PDF and CSV files can be stored in a shared directory.



Formula editor

The Formula editor allows the use of individual calculations.

Select one of the standard formulas and modify them if necessary.

In addition to a number of units (% , g/l ...) you can also assign an individual unit.

Results (titre, blank value, etc.) can be automatically written to global memory and reused later.

Result
Chloride in %
Result text
Edit formula
Select formula
Formula parameter
Selection
Enter
Back
20 ml NaOH

Edit formula 1
Chloride in %
 $(EQ1-B)*T*M*F1/(W*F2)$
Back
20 ml NaOH

Edit name
MO1:Blank value
Blank value
Position
Continue
Back
20 ml NaOH 06/06/17 15:53

TITRONIC® burettes and TitroLine® titrators selection table

Application	TITRONIC® 300	TITRONIC® 500	TitroLine® 5000
Intelligent interchangeable 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 TitrSoft	■	■	—
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, permanganometry....)	—	—	■
Redox titrations (COD)	—	—	■
Halide titrations (chloride, "salt"....)	—	—	■
Hydrogen sulphide and mercaptans	—	—	—
Sulfurous acid in wine and beverages	—	—	—
Bromine number	—	—	—
Water analysis according to KF Volumetric method (10 ppm - 100%)	—	—	—
Water analysis according to KF Coulometric method (1 ppm - 10%)	—	—	—
Measuring two parameters at the same time (e.g., pH and Cond)	—	—	—
Photometric titration (OptiLine 6)	—	—	—

1) 20 and 50 ml dosing unit usable (no intelligent interchangeable units)

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

TitroLine® 7000	TitroLine® 7750	TitroLine® 7800	TitroLine® 7500 KF	TitroLine® 7500 KF trace
■	■	■	■	—
■	■	■	—	—
■	■	■	■	—
■	■	■	■	—
■	■	■	■	■
■	■	■	■	■
■	■	■	—	—
■	■	■	—	—
■	■	■	—	—
■	■	■	—	—
■	■	■	—	—
■	■	■	—	—
■	■	■	—	—
■	■	■	—	—
■	■	■	—	—
■	■	■	■	—
■	■	■	■	■
—	■	■	■	—
—	—	—	—	■
—	—	■	—	—
■	■	■	—	—

Applications Overview (examples)



Water and Wastewater Analysis

Application	TitroLine® 5000	TitroLine® 7000 / 7750	TitroLine® 7800
Alkalinity (p+m-value)	■	■	■
COD	■	■	■
Permanganate index	■	■	■
FOS/TAC	■	■	■
pH + Cond + acid capacity	■	■	■
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	TitroLine® 5000	TitroLine® 7000 / 7750	TitroLine® 7800
Total acidity in wine and soft drinks	■	■	■
Total acidity in food (ketchup, salad dressing)	■	■	■
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	TitroLine® 5000	TitroLine® 7000 / 7750	TitroLine® 7800
Titration with perchloric acid (waterfree)	■	■	■
Hydroxyl number	■	■	■
NCO (Isocyanate) number	■	■	■
Epoxy number	■	■	■
Acid number in resins and other industrial products	■	■	■
Total acidity in mineral oils ("TAN")	■	■	■
Total base number ("TBN") in oils	■	■	■
Electroplating (Metals, acids, leach, etc.)	■	■	■

- Excellent application suitability
- Titration is possible for this application with restrictions and must be evaluated
- Not applicable

