

Titration, SI Analytics

① Automatic titrator TitroLine® 5000

Very compact new titrator for straight-cut routine titration. Thanks to standard methods, no programming of methods is required. The results and the titration curve can be documented in compliance with GLP on a printer or USB flashdrive.

Suitable for the following titration methods:

- pH titration, mV end points (2 EP)
- Titration to a turning point (pH and mV) with dynamic or linear titration allowance
- Manual titration with hand sensor
- Dosing
- Number of methods: 3

Examples for typical applications of the TitroLine® 5000:

- Salt content in food (cheese, soy sauce, ketchup ...)
- Total acid in wine and beverages
- Acid level in bread and sourdough
- Total Kjeldahl nitrogen
- Alkalinity (p + m value)
- FOS/TAC

Technical data:

Measuring input electrode: pH/mV-input with electrode socket according to DIN or BNC
Measuring input Pt 1000: temperature sensor port for resistance thermometer Pt 1000 (connection sockets 2 × 4 mm)

Interfaces: 1 × USB A and 1 × USB-B, 2 × RS-232-C

Stirrer connection: TM 50, power supply directly by the titrator

Keypad port: operated by the keys on the unit, hand control element TZ 3880 and with an optional PC keyboard (USB)

Display: graphics-enabled TFT display

Dispensing units: 20 ml or 50 ml dispensing units are exchangeable

Burette resolution: 8,000

Dispensing accuracy: systematic measurement deviation 0.15%, random measurement deviation 0.07%, determined in accordance with DIN EN ISO 8655-6, part 3

Power supply: 100–240 V, 50/60 Hz

Conformity: ISO 8655, part 6

CE-mark: EMV: 2004/108/EG; Safety EC-Directive 2006/95

Article	Order No.
TitroLine® 5000 with 20 ml dosing unit, TL 5000/20 M1	10 27 15760
Titrator without electrode, with 20 ml dispensing unit, magnetic stirrer TM 50, manual switch, titration clamp, stand rod and power supply 100–240 V	
TitroLine® 5000 with 50 ml dosing unit, TL 5000/50 M1	10 27 15770
Titrator without electrode, with 50 ml dispensing unit, magnetic stirrer TM 50, manual switch, titration clamp, stand rod and power supply 100–240 V	
TitroLine® 5000 with 20 ml dosing unit and pH-electrode, TL 5000/20 M2	10 27 15780
Titrator with pH combination electrode and buffer set, with 20 ml dispensing unit, magnetic stirrer TM 50, manual switch, titration clamp, stand rod and power supply 100–240 V	
TitroLine® 5000 with 50 ml dosing unit and pH-electrode, TL 5000/50 M2	10 27 15790
Titrator with pH combination electrode and buffer set, with 50 ml dispensing unit, magnetic stirrer TM 50, manual switch, titration clamp, stand rod and power supply 100–240 V	

Accessories for TitroLine® 5000

Article	Order No.
TM 50, magnetic stirrer	10 27 15840
TZ 3835, mini USB keyboard	10 27 10410
TZ 3830, USB-HUB	10 27 10420
TZ 3803, amber reagent bottle, 1 l	10 27 10590



② TitroLine® 7500 KF

Compact, new, easy to use volumetric KF titrator with intelligent exchange unit and automatic recognition of unit size and reagent data. Thanks to the state-of-the-art USB and additional RS232 interfaces, connection of printer, balance and further accessories is possible at the same time. The high-contrast TFT-display allows the easy parameterisation and tracking of the titration curve. Solvent is added and extraction of the titrated solution takes place at the push of a button.

TitroLine® 7500 KF 05/10/20: complete modules for titration according to Karl Fischer. Scope of delivery: TitroLine 7500 KF basic device, with exchange unit WA 05, WA 10 or WA 20, titration stand with pump TM 235 KF, titration vessel TZ 1770, micro-double platinum electrode KF 1100 with permanent cable and starter kit

Technical data:

Hardware

Interfaces:	3 × USB (2 USB-A and 1 × USB-B) 2 × RS-232-C, 1 × LAN
Stirrer connection:	TM 235 KF
Keypad port:	Operation via the key at the unit or optionally via external PC keyboard (USB)
Display:	3.5" graphic TFT display
Burette units:	5, 10, 20 ml exchanger units with recognition of unit size and reagent data
Burette resolution:	10,000 steps
Dispensing accuracy:	Systematic measuring deviation 0.15%, random measuring deviation 0.05 - 0.07% (depending on unit size), determined pursuant to EN ISO 8655 part 3
Power supply:	100 - 240 V; 50/60 Hz
Conformity:	ISO 8655, part 6
CE sign:	EMC: 2004/108/EC; EC safety directive 2006/95
KF measuring input:	Connection for double platinum electrode; pole voltage adjustable

Software

Downloadable but freely configurable methods for sample titration, titer determination with water, titer determination with standard solutions, titer determination with sodium tartrate, and blank value analysis (oven and external extraction). 50 methods in total. Automatic drift detection and correction. Extraction time configurable. Statistic functions: Mean value, standard deviation, and variance. Printout is configurable (short, standard, GLP).

Article	Order No.
TitroLine® 7500 KF 05	10 27 10710
TitroLine® 7500 KF 10	10 27 10720
TitroLine® 7500 KF 20	10 27 10730

Accessories for TitroLine® 7500 KF

Article	Order No.
TZ 3863, USB compact printer incl. printer cable	10 27 10430



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③ TitroLine® 7500 KF trace

Compact, new, easy to use **coulometric** titrator for water determination according to **Karl Fischer (KF)**. Thanks to the state-of-the-art USB and additional RS232 interfaces, connection of printer, balance and further accessories is possible at the same time. The high-contrast TFT-display allows the easy parameterisation and tracking of the titration curve. Solvent is added and extraction of the titrated solution takes place at the push of a button (modul 2 and 4).

Technical data:

Hardware

Interfaces:	3 × USB (2 USB-A and 1 × USB-B) 2 × RS-232-C, 1 × LAN
Stirrer connection:	TM 235 or TM 235 KF
Keyboard connection:	Operation via the keys at the unit or optionally via external PC keyboard (USB)
Display:	3.5" graphic TFT display
Power supply:	100 - 240 V; 50/60 Hz
CE sign:	EMC: 2004/108/EC; EC safety directive 2006/95
Measuring range:	1 µg - 100 mg
Resolution:	0.1 µg
Precision:	± 3 µg at 10 - 1,00 µg 0.3% at > 1 mg
max. measuring speed:	ca. 2 mg/min

Software

50 parameterizable methods incl. methods for blank value analysis (e.g. KF oven and external extraction).

Automatic drift detection and correction. Extraction time configurable.

Statistic functions: Mean value, standard deviation, and relative standard deviation

Printout is configurable: Short, standard with curve, GLP

Results can be output in ppm, %, mg, µg, mg/l



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Article	Order No.
TitroLine® 7500 KF trace, module 1	10 27 10760
Complete module for coulometric titrations acc. to Karl Fischer Scope of delivery: titration unit, generator electrode TZ 1752 without diaphragm + mains cable, magnetic stirrer TM 235, telescopic rod, titration vessel TZ 1751, micro-double platinum electrode KF 1150 with permanent cable	
TitroLine® 7500 KF trace, module 2	10 27 10770
Complete module for coulometric titrations acc. to Karl Fischer Scope of delivery: titration unit, generator electrode TZ 1752 without diaphragm + mains cable, titration stand with pump TM 235 KF, telescopic rod, titration vessel TZ 1754, micro-double platinum electrode KF 1150 with permanent cable	
TitroLine® 7500 KF trace, module 3	10 27 10780
Complete module for coulometric titrations acc. to Karl Fischer Scope of delivery: titration unit, generator electrode TZ 1753 without diaphragm + mains cable, magnetic stirrer TM 235, telescopic rod, titration vessel TZ 1751, micro-double platinum electrode KF 1150 with permanent cable	
TitroLine® 7500 KF trace, module 4	10 27 10790
Complete module for coulometric titrations acc. to Karl Fischer Scope of delivery: titration unit, generator electrode TZ 1753 without diaphragm + mains cable, titration stand with pump TM 235 KF, telescopic rod, titration vessel TZ 1754, micro-double platinum electrode KF 1150 with permanent cable	

Accessories for the TitroLine® 7500 KF trace

Article	Order No.
TZ 3863, USB compact printer incl. printer cable	10 27 10430
TZ 1052, KF oven	10 27 11052
TZ 1060, set of required accessories for KF oven	10 27 11060
TZ 1065, flow meter for gases	10 27 11065

