

① TitroLine easy

The automatic TitroLine easy titrator makes titrating quick and easy. This automatic titrator combines the properties of the piston burette and a pH meter with exceptionally high integrated intelligence. This intelligence carries out the parameterization of the method for you. All you have to do is press the „Start“ button and the unit quickly displays the result on the large display. Ten different titration methods are built in and can be called up directly.

Three modes to choose from:

- End point (EP)
- Self-searching equivalence point (Auto EQ)
- Manual titration with the hand sensor (as with the TITRONIC® basic)

Possible application examples for the TitroLine easy include:

- Salt content in food (cheese, soy sauce, ketchup)
- Total acid in wine and beverages
- Degree of acidity in sourdough
- Nitrogen according to the Kjeldahl method
- Iodometric titrations
- Acid capacity („n“ value)
- Chloride in drinking water

Technical data:

Conformity:	EN ISO 8655-3
Cylinder:	20 ml made of DURAN® with UV protection
Valve:	Motor-driven 3/2-way made of PTFE/ETFE
Hoses:	FEP with UV protection
Dispensing accuracy:	Systematic measurement deviation 0.1%, random measurement deviation 0.05%, determined in accordance with DIN EN ISO 8655-6
Volume display:	0.01 to 999.9 ml
Display:	Matrix LCD display 69 × 39 mm, 64 × 128 pixels with background lighting, adjustable contrast
Hand control element:	Plug connection: 4-pole round plug mini DIN
Stirrer:	Plug connection with integrated low-voltage power supply for TM 96
Electrodes:	pH/mV: DIN- or BNC socket. Measuring range pH 0 to 14, mV -1400/+1400
Temperature sensor:	Pt 1000, measuring range -30 to +115°C
RS-232-C:	A bidirectional RS-232-C interface, 4-pole round socket mini DIN
Power supply:	230 V~, 50/60 Hz or 115 V~, 50/60 Hz
Housing dimensions:	135 × 310 × 205 mm (W×H×D), height includes dosage unit, excludes stirrer
Weight:	approx. 2.2 kg
Climate:	Ambient temperature: +10 to +40°C for operation and storage

Technical modifications reserved.

Article	Order No.
TitroLine easy module 1, 230 V~	74 27 12597
Titrator with dispensing top, titration tip, support rod, titration tip holder, TM 96 magnet stirrer	
TitroLine easy module 2, for titrators 230 V~	74 27 12848
Same as module 1, plus pH combination electrode, buffer set	
TitroLine easy module 3, for argentometric titrators 230 V~	74 27 12864
Same as module 1, plus Ag combination electrode and L1A cable	

Essential accessories

Article	Order No.
TZ 2004, bottle set for titrating agent	74 27 21047
With GL45 adapter and 1 l amber glass bottle	
TZ 2008, adapter	74 27 21088
For reagent bottles with S 40 thread	

② TitroLine KF

Very compact, easy-to-use volumetric Karl-Fischer titrator for quick and exact water determination. Large display simplifies operation of the KF titrator with its dialog guidance. The connectable external keyboard enables easy entry of alphanumeric sample designations and scale data. Adding the solvent and extracting the titrated solution is done at the press of a button.

TitroLine KF: Complete module for Karl-Fischer titrations

Items supplied: TitroLine KF base device, TM KF titration stand with pump, TZ 1770 titration receptacle, KF 1100 micro double board electrode with fixed cable and starter kit.



Technical data:**Hardware**

RS-232-C interface no.1:	for connecting to a PC for control and data transmission, or for connecting to a serial printer
RS-232-C interface no.2:	for connecting to additional titrators according to the „daisy chain“ principle or for connecting to an analysis scale
Stirrer connection:	Stirrer of TM-KF titration stand; start and stop signal form TitroLine KF
Keypad port:	for TZ 2835 PC keyboard
Display:	high-contrast, 8-line LCD display with background lightning and contrast adjustment, 69 × 39 mm
Burette volume:	20 ml
Burette resolution:	8000 steps
KF measuring input:	Connection for double board electrode; freely selectable polarization voltage

Software:

Downloadable, freely configurable complete methods for sample titration (3), titer determination with water, titer determination with standard solutions, titer determination with sodium tartrate and blank value analysis (oven and external extraction). Automatic drift detection and correction. Extraction time configurable. Statistic functions: Mean value, standard deviation and variance. Automatic integration of the titer and blank value into the following result calculation. Print-out is configurable (short, standard, GLP). Device checking functions. 4 different languages (German, English, French, Spanish).

Article	Order No.
TitroLine KF	74 27 12248

Accessories for TitroLine KF

Article	Order No.
TZ 2008, adapter	74 27 21088
For reagent bottles with S 40 thread	
TZ 1795, adapter	74 27 16858
For waste and solvent bottles from the TM KF with S 40 thread	
TZ 1052, drying oven	74 27 14721
For water determination by the Karl-Fischer method	
TZ 1060, accessories set for drying oven	74 27 18107
TZ 3460, RS-232-C printer incl. printer cable	74 27 25608

Recommended accessories for the TitroLine KF

Article	Order No.
TZ 2835, PC keyboard	10 27 17852

③ TitroLine KF trace (coulometrisch)

Coulometric titrator for water determination according to Karl Fischer (DF). A connectable, external keypad (optional) enables easy entering of alphanumeric sample designations and weight data. Adding the solvent and extracting the titrated solution is done by pressing a button (only for module 2). The USB interface facilitates the connection to a PC.

Scope of delivery:

TitroLine KF trace, module 1 (complete module for coulometric Karl-Fischer-Titrations): TitroLine KF trace basic device, magnetic stirrer TM 135, titration vessel TZ 1751, micro-double platinum electrode KF 1150 with fixed cable, generator cell TZ 1752 with transmissible generator electrode.

TitroLine KF trace, module 2 (complete module for coulometric Karl-Fischer-titrations): TitroLine KF trace basic device, titration stand with pump TM KF, titration vessel TZ 1754, micro-double platinum electrode KF 1150 with fixed cable, generator cell TZ 1752 with permissible glass diaphragm, connection cable generator electrode.

Technical data:

Range:	1 µg to 100 mg
Resolution:	0.1 µg
Precision:	± 3 µg at 10 to 1000 µg, 0.3 % at > 1 mg
Max. measurement speed:	2 mg/min
Software (most important function):	10 parameterisable methods incl. method for blind value determination (e.g. KF-oven, external extraction)
Drift correction:	automatic drift determination and correction. Extraction time adjustable.
Statistics functions:	average value, standard deviation and relative standard deviation
Print-out configurable:	short, standard with curve, GLP
Output of results:	in ppm, %, mg, µg, mg/l
4 language versions:	German, English, French, Spanish

Article	Order No.
TitroLine KF trace, module 1	10 27 12258
TitroLine KF trace, module 2	10 27 12268
TZ 2835, PC keyboard	10 27 17852
TZ 1795, adapter	74 27 16858
For waste and solvent bottles from the TM KF with S 40 thread	
TZ 3460, RS-232-C printer incl. printer cable	74 27 25608



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