

Titrette® – the first bottle-top burette to satisfy Class A error limits for glass burettes! It is also remarkable for its easy dropwise titration, compact design, ultra-high precision, replaceable piston/cylinder assembly and an optional PC interface. With the Titrette® bottle-top burette, you can titrate quickly and reliably with the highest precision, even in close quarters, with no power hookup needed – in the lab, in production, or in the field.



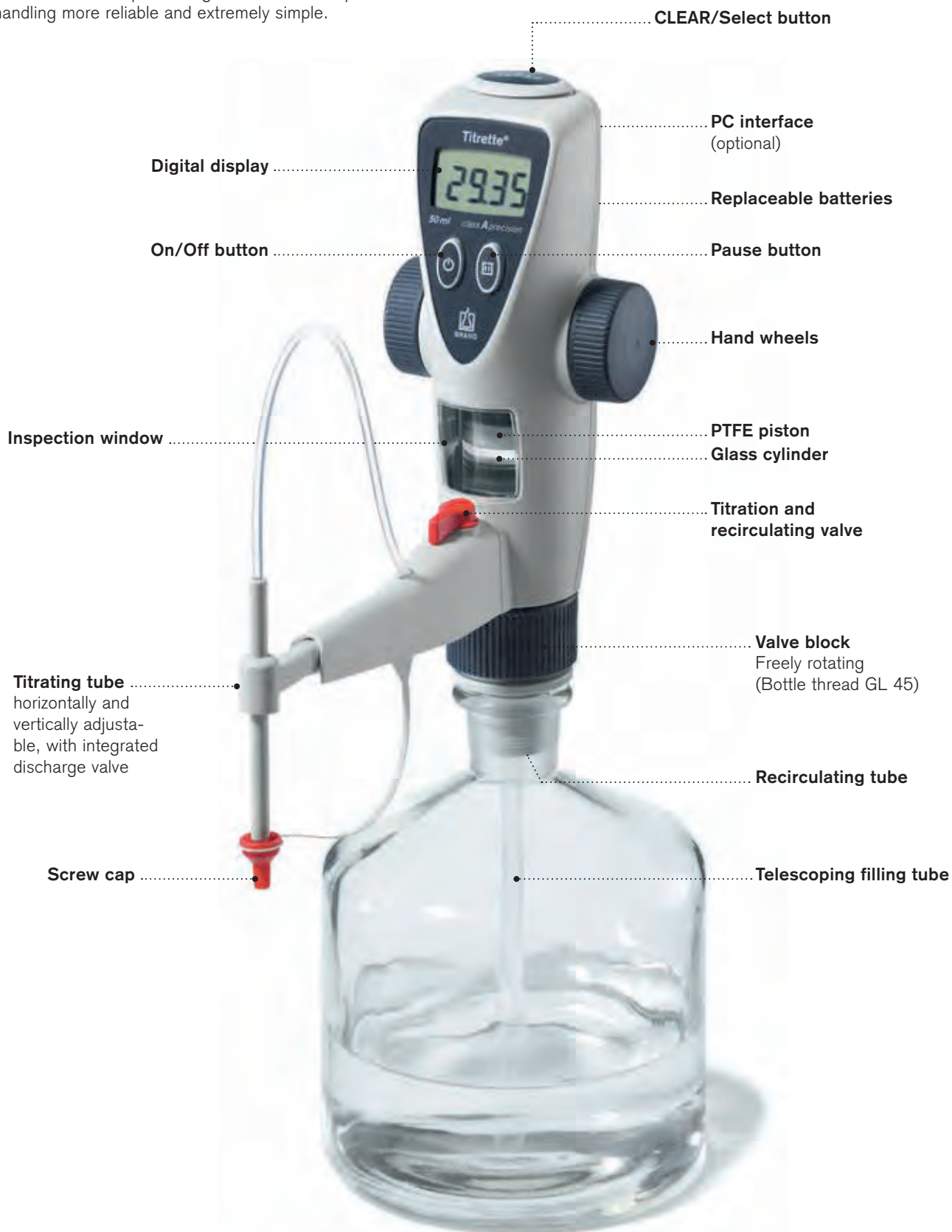
Titrette®

Bottle-top Burette



A Closer Look...

The control elements of the Titrette® bottle-top burette have an intuitive layout. Separate buttons for On/Off and Pause; CLEAR button allows user to reset the display and select functions. Easy-grip hand wheel action and smooth precision gears for fast or drop-wise titration make handling more reliable and extremely simple.



Use and Handling



Smooth operation

No switching is needed to change between filling and titration. The dispenser automatically detects whether you are filling or titrating by the direction of hand wheel rotation. With the optimized gear ratio, you can fill the instrument quickly and still titrate drop-wise very slowly and sensitively. The drop size for the 10 ml instrument is approx. 20 µl, and for the 25 and 50 ml instruments approx. 30 µl.

User serviceable

The dispenser is quickly and easily dismantled within a few minutes – for cleaning, to replace the piston/cylinder, or to replace the batteries. Now you can carry out maintenance conveniently and easily in the lab, and the instrument is ready to use again in minutes.

Light-weight and compact

The compact and lightweight design ensures good stability. The titrating tube can be adjusted horizontally and vertically. This provides flexibility when positioning the instrument, e.g., when using a magnetic stirrer or different bottle sizes.



Light protection

For protection of light-sensitive media, the clear inspection windows can be replaced with the amber colored windows (included).



Useful extras

The instrument is equipped with four helpful additional electronic functions:

Adjustment with Easy Calibration

With Easy Calibration technology, the instrument can be adjusted quickly and easily – with no tools! A small 'CAL' icon in the display indicates that the factory setting has been changed.

Calibration schedule

The next calibration date can be stored under 'GLP', and called up each time the instrument is turned on. The GLP and the year and month of the scheduled date are then shown continuously.

Save power with Auto Power Off

The instrument switches off automatically after longer periods of inactivity. The current display value is stored, and returned to the display after the power is switched on again manually. Under 'APO' (Auto Power Off), the inactivity period until automatic power off can be set from 1 to 30 minutes.

Changing decimal place settings

For use as a micro-burette, the titrated volume display can be switched from 2 to 3 decimal places under 'dP' (decimal point). Above 20.00 ml, the display automatically switches to 2 decimal places.



PC interface (optional)

The instrument is available with an optional RS 232 communications interface. Advantages compared to the standard configuration:

- The titration results are automatically transmitted to the PC by double-clicking on the CLEAR key. This eliminates transcription errors while recording primary data, and complies with an important requirement of GLP.
- With each data transfer, the burette sends the titrated volume, the serial number of the instrument, the nominal volume and the adjustment value, as well as the next scheduled calibration date. Thus, all raw data is collected and displayed together with actual date/time stamp from the PC.

The transmitted data is recognized as keyboard inputs by the PC. This universal input format ensures that the instrument is compatible with all PC applications that accept keyboard inputs.

To connect the instrument to a USB interface, simply use a standard USB/RS 232 adapter.


The instrument can be used for the following titration media (maximum concentration 1 mol/l):
Range of application

Acetic acid	Potassium bromide bromate solution
Alcoholic potassium hydroxide solution	Potassium dichromate solution
Ammonium iron (II) sulfate solution	Potassium hydroxide solution
Ammonium thiocyanate solution	Potassium iodate solution
Barium chloride solution	Potassium permanganate solution*
Bromide bromate solution	Potassium thiocyanate solution
Cerium (IV) sulfate solution	Silver nitrate solution*
EDTA solution	Sodium arsenite solution
Hydrochloric acid	Sodium carbonate solution
Hydrochloric acid in acetone	Sodium chloride solution
Iodide Iodate solution*	Sodium hydroxide solution
Iodine solution*	Sodium nitrite solution
Iron (II) sulfate solution	Sodium thiosulfate solution
Nitric acid	Sulfuric acid
Oxalic acid solution	Tetra-n-butylammonium hydroxide solution
Perchloric acid	Triethanolamine in acetone*
Perchloric acid in glacial acetic acid	Zinc sulfate solution
Potassium bromate solution	

* Use light shield inspection window

The above recommendations reflect testing completed prior to publication. Always follow instructions in the operating manual of the instrument as well as the reagent manufacturer's specifications. Should you require information on chemicals not listed, please feel free to contact BRAND. Status as of: 0713/4

When the instrument is properly handled, dispensed liquid will only come into contact with the following chemically resistant materials: borosilicate glass, Al_2O_3 , ETFE, PFA, FEP, PTFE, platinum-iridium; PP (screw cap).

Limitations of use

Chlorinated and fluorinated hydrocarbons or chemical combinations which form deposits may make the piston difficult to move or may cause jamming.

Compatibility of the instrument for a special application (e.g., trace material analysis) must be checked by the user. For additional information, please contact the manufacturer.

The instrument is not autoclavable!

Operating limits

This instrument is designed for titrating liquids, observing the following physical limits:

- +15 °C to +40 °C (59 °F to 104 °F) of instrument and reagent
- Vapor pressure up to 500 mbar
- Viscosity up to 500 mm²/s
- Altitude: maximum 3000 m above sea level
- Relative humidity: 20% to 90%

Comparison of error limits

Volume ml	Partial volume ml	Titrette® bottle-top burette				Bottle-top burettes according to DIN EN ISO 8655-3				Glass burettes Class A acc. to DIN EN ISO 385 and ASTM
		A* ≤ ± %	μl	CV* ≤ %	μl	A* ≤ ± %	μl	CV* ≤ %	μl	EL** ± μl
10 <i>NEW!</i>	10	0.10	10	0.05	5	0.3	30	0.1	10	20
	5	0.20	10	0.10	5	0.6	30	0.2	10	20
	1	1.00	10	0.50	5	3	30	1	10	20
25	25	0.07	18	0.025	6	0.2	50	0.1	25	30
	12.5	0.14	18	0.05	6	0.4	50	0.2	25	30
	2.5	0.70	18	0.25	6	2	50	1	25	30
50	50	0.06	30	0.02	10	0.2	100	0.1	50	50
	25	0.12	30	0.04	10	0.4	100	0.2	50	50
	5	0.60	30	0.20	10	2	100	1	50	50


* Calibrated to deliver (TD, Ex). Error limits according to the nominal capacity (= maximum volume) indicated on the instrument, obtained with instrument and distilled water at equilibrium with ambient temperature at 20 °C, and with smooth, steady operation. The error limits are well within the limits of DIN EN ISO 8655-3. Conformity certified to DIN 12600.

A = Accuracy, CV = Coefficient of variation

** Error limit: EL = A + 2CV, according to DIN EN ISO 8655-6 Annex B

The titration volume is displayed in steps of 1 μl at instruments with 10 ml and 25 ml size and in steps of 2 μl for 50 ml size instruments. For titration volumes above 20 ml the display will automatically switch to steps of 10 μl.

The error limits for Class A burettes according to DIN EN ISO 385 are met.

Note!  If you need an official certification which confirms the error limits that are much stricter than those of DIN EN ISO 8655-3, we recommend a calibration certificate from an accredited calibration laboratory (e.g., the DAkkS laboratory at BRAND).

Ordering Data


Titrette®

Items supplied:

Each Titrette® bottle-top burette is conformity certified and supplied with performance certificate, telescoping filling tube (170 - 330 mm), recirculation tube, 2 batteries (AAA/UM4/LR03), 3 PP bottle adapters (GL 45/32, GL 45/S 40, GL 32/NS 29/32), 2 amber colored light shield inspection windows.

Volume	Standard Cat. No.	with RS 232 interface*
10 ml <i>NEW!</i>	4760 141	4760 241
25 ml	4760 151	4760 251
50 ml	4760 161	4760 261

* Additionally included: 2 m interface cable (Sub-D plug connector, 9-pin), one CD (driver software and open RS232 communication protocol). The CD also includes an example application in XLS-file format, as well as a special operating manual.

Note!  When ordering instruments with DAkkS calibration certificates, the prefix 'DAkkS' must be added to the order number, e.g., DAkkS 4760 161.

BRAND also offers calibration service at the factory lab. For more information, please see page 326.



Accessories and Spare Parts

(Other spare parts and accessories can be found in the operating manual.)



Titration tube

With screw cap and integrated discharge and recirculation valve. Pack of 1.

for volume ml	Cat. No.
10	7075 25
25 + 50	7075 29*

* Manufactured from Jan. 2012 onwards (serial number 01K)



Telescoping filling tubes

FEP.
Pack of 1.

Length mm	Cat. No.
170 - 330	7042 04
250 - 480	7042 05



Filling valve

With olive-shaped nozzle and sealing ring. Pack of 1.

Cat. No.	6636
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Inspection window

1 set colorless and 1 set amber colored (light shield).

Cat. No.	6783
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Piston

Pack of 1.

for volume ml	Cat. No.
10	7075 31
25	7075 30
50	7075 32



Dispensing cylinder with valve block

Pack of 1.

for volume ml	Cat. No.
10	7075 33
25	7075 35*
50	7075 37*

* Manufactured from Jan. 2012 onwards (serial number 01K)



Bottle Stand

PP. Full plastic construction. Support rod 325 mm, base plate 220 x 160 mm, weight 1130 g. Pack of 1.

Cat. No.	7042 75
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Drying tube

Drying tube and seal, without drying agent. Pack of 1.

Cat. No.	7079 30
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Threaded bottles, coated and uncoated, see page 299.



See page 26 for an overview of available **bottle adapters.**