

Titration Excellence



Excellence Titrators

T5

T7

T9



One Click™ Titration

Efficient, Secure and Modular

METTLER TOLEDO

Tailored Exactly to Your Needs

Efficient, Secure and Modular

Successful companies take the most direct route to achieve their goals. This safeguards their leading position and enables them to offer their customers decisive advantages. The most direct route is characterized by simplicity, efficiency, and security. But of course, simple, efficient and secure are perceived differently by each individual user. That is why METTLER TOLEDO's Titration Excellence line has been designed with the utmost modularity in mind.

Complete efficiency – One Click™ Titration



The Titration Excellence line ensures you get your results easily and quickly. The Shortcuts, which can be set up specifically for each user, are extremely helpful. Whether you want to calibrate electrodes, rinse burettes or start methods – you can define a Shortcut for any operation you like and store it on your Home-screen.

Stay in touch with your analysis



In today's research and manufacturing environments, many measurements and analysis are run simultaneously. Keeping track of all the different devices is a key task to maintain an efficient work flow. StatusLight™ helps you increase efficiency by supporting routine operation with visual signaling. In addition acoustical signals lead you throughout the titration process. Stay in touch with your titration from anywhere in the lab.

Security thanks to real Plug and Play



Automatic burette recognition feature ensures that all quality-relevant data such as concentration, titer and expiration date are promptly read in and checked, irrespective of the drives on which the burettes with the titrants are present. The password-protected user management system coupled with user rights guarantees that critical data cannot be changed by mistake.



The modern titration platform is a sound investment

The modular design of the Titration Excellence line guarantees that you are optimally prepared for future changes. The modern platform provides you with ideal interfaces. Devices such as printers, memory sticks or barcode readers can be connected via the USB port and are automatically recognized. The built-in Ethernet and USB connections allows you to integrate your titrators directly into a LabX[®] network. The Titration Excellence line is a sound investment for the future.

One Click™ Titration

Simple and Secure Operation

One Click Titration is an intuitive usability concept designed to add a sense of ease to every-day laboratory work. Users are able to customize their screen and short-keys and access these to start analyses and workflows quickly and easily. The ease in operating METTLER TOLEDO's titrators results in less errors and higher efficiency in the laboratory.

Optimized routines thanks to exceptional user guidance



Titration Excellence's One Click interface allow you to optimize routine tasks. The shortcuts on the homescreen can be customized individually to suit each user's needs.

Secure navigation with the Home button



Regardless of which submenu you are currently in, one single keystroke on the Home button takes you directly back to your Homescreen. Here you have added security: you are prompted to save your changes.

Easily select and adapt titration methods



Over 60 commonly used and well-proven methods are stored as METTLER TOLEDO methods in the instrument. If desired, you can easily modify these methods using the well-designed method editor so that they can be optimally integrated in your processes.



Carmen, laboratory assistant:
 "Thanks to my personalized Home-screen, I can perform all the different analyses very quickly and efficiently."



Katherine, laboratory manager:
 "The individual user rights feature means that I can make sure that users stick to our quality guidelines."



Vincent, production assistant:
 "All I have to do to analyze the intermediate product every hour is press a Shortcut."

Improved Efficiency Through Intelligence and Automation

In today's highly competitive environment, having the right equipment is of great importance to achieving an efficient work process. In order to deliver accurate results fast, comply with regulations and make the most of your staff skills, you need a titrator you can trust. METTLER TOLEDO's Titration Excellence provides the innovation to meet your needs.

SmartChemicals – efficient and secure data transfer



SmartChemicals are innovative products offered by METTLER TOLEDO that reinforces the concept of seamless workflows. All relevant chemical data such as name, batch number, or expiration date are stored on the chip placed below the chemicals label and transferred to the titrator with help of the integrated Smart reader. The automated data flow ensures its accuracy and completeness while saving operator time.

Powerful Automation



Automation in a laboratory today has high demands for a variety of samples and workflows. Automation is no longer just going from sample to sample for analysis. From eliminating process order and transcription errors of sample information to complex cleaning, METTLER TOLEDO autosamplers are designed to assist in every way for flexible workflows and efficient analysis.

Precise Liquid Handling with DispensSix



The accurate and precise aliquoting of sample solutions is a crucial step for titration analyses. With an unbeatable dead volume and high resolution, the DispensSix liquid handler delivers highly accurate dispensing. Its versatility, industry-proven ruggedness, and One Click interface efficiently automates both simple and complex titration applications for your industry segment.



The satisfaction of being able to organize complex tasks efficiently

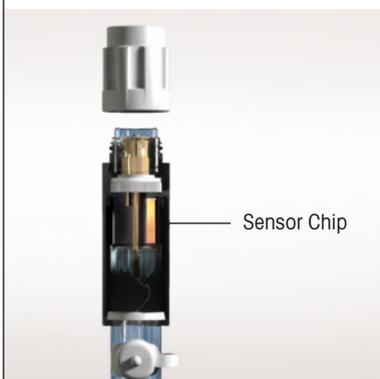
With the Titration Excellence T9 model, it is easy to organize complex tasks efficiently. The "if...then" logical conditions allow the instrument to decide how the analysis should proceed. For example, does acid or base have to be added first to satisfy the initial pH conditions? Up to seven additional dosing units ensure all the necessary resources are available at any time. Together with the InMotion™ Autosampler, the DispenSix liquid handler and the Titration Excellence line provides an efficient system solution.

Complete Overview and Security

Thanks to Comprehensive Control

Titration Excellence enables you to integrate your device in any workflow process you need. The Plug and Play concept ensures automatic recognition of USB and RS232 devices, as well as additional burette drives and sensor boards. This means you can use these resources immediately and without further configuration, giving you the utmost security in your titration analysis.

Plug and Play Sensors kept under control



The instruments in the Titration Excellence line automatically recognize Plug and Play Sensors. All relevant data is saved in the Sensor Chip and automatically transferred to the titrator ensuring the correct sensor is being used at all times.

SmartSample™ flexibility



A SmartSample reader is installed as standard on all Excellence instruments. Wireless data transfer from balance to titrator is now possible on single samples, eliminating transcription errors due to manual entry. The Smart-Sample solution is therefore an intelligent choice for both single- and automated multi-sample titration.

Maximum security through flexible user management



Titration Excellence instruments are equipped with a comprehensive user management system that allows you to register each user and to set up a Homescreen for each user. Depending on who logs on to the titrator, the corresponding Shortcuts together with the other user-defined settings appear such as screen settings or the language the user requires.



Implemented security thanks to the Dual Mode

Dual Mode allows you to work from the terminal or from a LabX® PC (or from both), depending on your environment and your needs. If there is no PC in your laboratory environment you can easily work from the Terminal. Via the network, all the results from an analysis are stored in the LabX database, independent of where the analysis was started. The integration of the titrators into a network could not be easier and is possible without further cost thanks to the Ethernet connection. The Titration Excellence line combines security with flexibility.

Tailored Exactly to Your Needs

Segment-specific Applications

No matter what task arises, METTLER TOLEDO's Titration Excellence line offers tailor-made solutions. The pre-programmed METTLER TOLEDO methods in the instrument can be used directly for analyses in various industry segments without further change.

Food

Many samples, many methods, one solution



Quality control of food and food ingredients means running a wide range of determinations such as pH, sodium and chloride content, acid value or peroxide value. Usually hundreds of food samples are analyzed per month. Therefore a titration system is needed that reduces the increasing workload for the laboratory personnel. Together with the InMotion™ Autosampler, the Titration Excellence line provides very efficient system solutions. Customize the user interface for lab personnel and use Shortcuts to simplify tasks and applications for users in each lab or plant!

Pharma

Active ingredient and water content determined in parallel



Frequently the active ingredient content of pharmaceutical substances is corrected with the water content. The Excellence titrator T9 takes care of the complete analysis: the active ingredient content is determined by titration and at the same time the water content is determined with a volumetric or coulometric Karl Fischer titration, running in parallel. Much time is saved as the water determination is fast and the calculations are automatically done by the titrator.

Chemistry

Meet demanding matrices with ease



Chemical products require optimized parameters for reliable end point and equivalence point titrations in non-aqueous media. The Titration Excellence line helps the customer with intelligent application modes, where the titration mode is selected and the optimal control parameters are automatically set. Titration Excellence means powerful, simple and efficient method development for demanding applications.



Service and Support

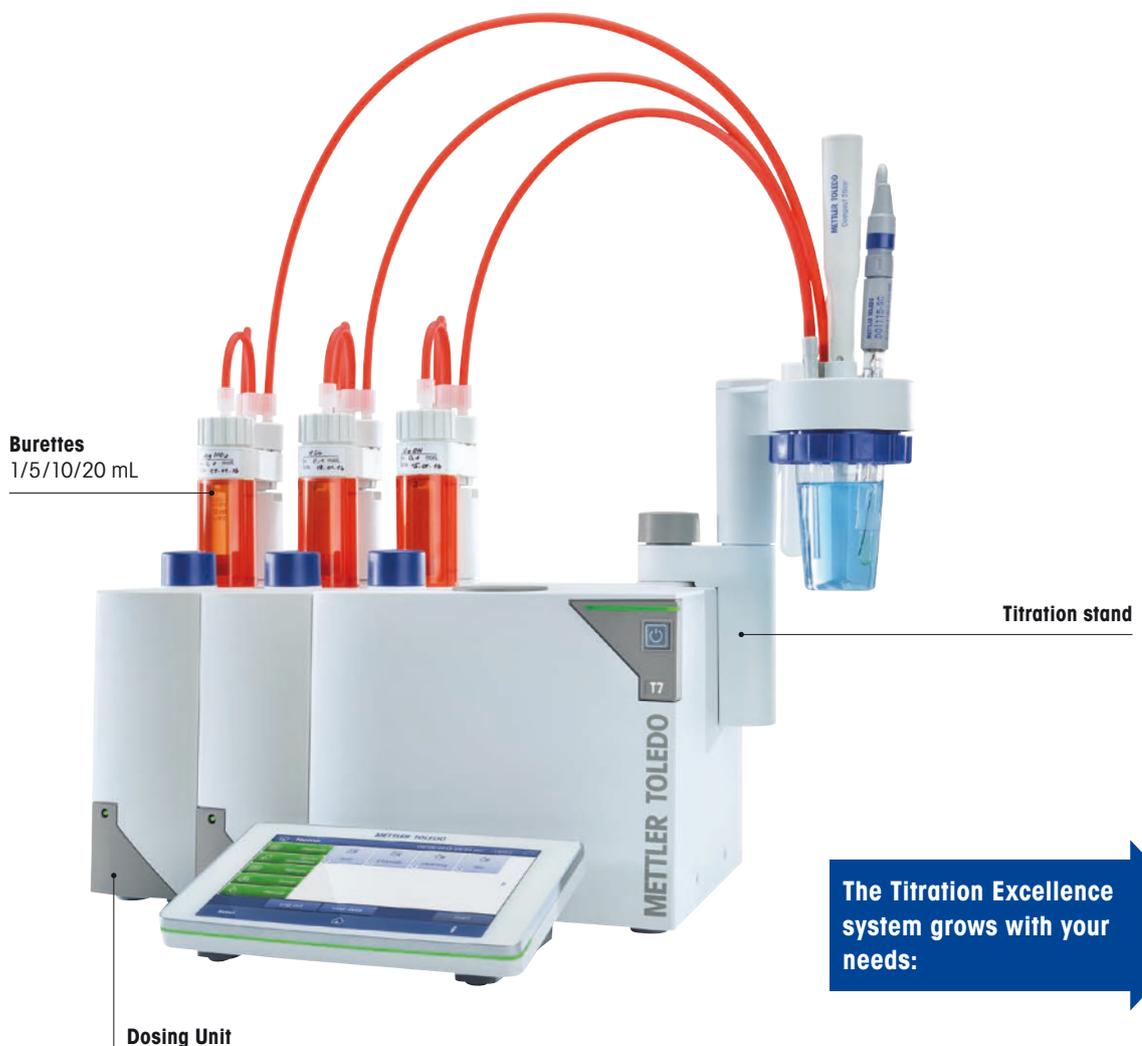
The necessity for instrument qualification and method/process validation to meet regulatory requirements is not just restricted to the pharmaceutical industry or the manufacturers of medical products.

All ISO certified companies recognize this necessity and express the need for procedures and documentation that prove that they satisfy the relevant quality and security standards. Feel secure in the knowledge that your Titration Excellence system is installed and qualified according to the quality standards that apply in your company. Ask for one of the qualification products offered by your local METTLER TOLEDO representative in the form of service and accompanying documentation.

- **IPac**
Initial qualification consisting of IQ and OQ
- **EQPac**
Complete instrument qualification including full documentation of the instrument's history
- **EduPac**
Guided and documented user training after the installation and for future additional operators
- **MuPac**
Take the guess work out of your titration method measurement uncertainty with a simple form and our validated software with a fully-compliant report.

For Every Application The Right Combination

Demands put on the laboratory and plant can change very quickly. This is no problem at all if you have secured the METTLER TOLEDO Titration Excellence line in your process. The instrument can be optimally adapted to your new requirements thanks to its modular design concept.



Upgrade concept guarantees cost efficiency

The modularity of the Titration Excellence systems allows you the security of a system that can be adapted in the future to fit the needs of your laboratory. Should a burette drive or additional sensor board need to be added due to changing needs in the lab, simply upgrade the existing system.

Automation accessories



LevelSens
Level and Waste
Sensor



DH100
Heating system



TV6 Valve
Liquid Sampling
Valve



Adapter Set
For Kinematica or
IKA Homogenizers



LogStraight
Fingerprint Reader

Software



PC software
LabX® Titration Server
LabX® Titration Express

Automation



InMotion™ KF
Oven Autosamplers



DispensSix
Liquid handler



Rondolino
Automated titration
stand



InMotion™
Autosamplers

Pumps



SP280
Peristaltic pump



SD660
Membrane pump



Solvent Manager



USB printer



Analytical balance



USB-P25 printer

Plug and Play and classic sensors

Plug and Play

pH
DGi101-SC
DGi102-Mini
DGi111-SC
DGi112-Pro
DGi113-SC
DGi114-SC
DGi115-SC
DGi116-Solvent
DGi117-Water

Platinum
DMi140-SC
DMi144-SC
DMi147-SC
DMi101-Mini

Silver
DMi102-SC
DMi141-SC
DMi145-SC
DMi148-SC

Classic

pH
DG111-SC
DG113-SC
DG115-SC

Platinum
DM140-SC

Silver
DM141-SC
DM405-SC

KF
DM143-SC

Bromine Index
PT885-NS-S7/105

Surfactant
DS500
DS800-TwoPhase

Thermotrode™

Phototrode™
DP5

Temperature
DT1000

Half cell/reference electrodes
DG300-SC
DX200
DX202-SC

Au805-S7/120
Sb850-S7/120

Conductivity
InLab®717
InLab®718
InLab®710
InLab®720
InLab®738
InLab®742



Karl Fischer titration



Volumetric and Coulometric KF Kits
including Solvent Manager, titration stand,
vessel, sensor, tubes and all accessories

Expansion boards



pH/mV Sensor Board
Conductivity Board
Coulometer Board

Comparison Table

T5, T7 and T9

The Titration Excellence line includes three models that are all based on the same platform. This guarantees that methods can be easily transferred to other instruments of the Titration Excellence line.

T5

Convenient and Versatile

Everything you need for titration, in two versions:

- T5 Manual stand and Terminal
- T5 Rondolino: Autom. titration stand Rondolino and Terminal
- All versions include pH board, integrated burette drive, integrated magnetic stirrer, compact stirrer and 10 mL burette.
- Expandable with up to three external burette drives for dosing purposes, one additional for titration purpose
- pH board exchangeable to conductivity or KF coulometer board
- Professional user management system
- Modern interfaces: USB, Ethernet and CAN-Bus
- Volumetric or coulometric Karl Fischer titration functionality

T7

Flexible and Expandable

Order the system that is exactly tailored to your needs:

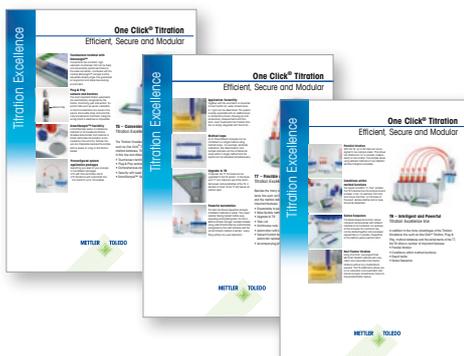
- T7 consisting of titrator with terminal, pH board and integrated burette drive
- All other components needed (titration stand, etc.) can be ordered as modules
- Expandable with a sensor board (pH, conductivity or coulometer), and up to three additional burette drives (for dosing and titration purposes)
- Possibility for later upgrade to T9
- Flexible method concept
- Simultaneous processing of different tasks possible (task list)
- Full volumetric and coulometric Karl Fischer titration functionality
- Series sequences for the easy processing of demanding and combined tasks

T9

Intelligent and Powerful

The powerful titration system that solves complex tasks easily and efficiently:

- T9 consisting of titrator with terminal, pH board and integrated burette drive
- All other components needed (titration stand, etc.) can be ordered as modules
- Expandable with two sensor boards (pH, conductivity or coulometer) and up to seven additional burette drives (for dosing and titration purposes)
- Parallel titrations
- Intelligent methods with "if...then" conditions
- Result buffer for method or series-overlapping calculations and synchronization of parallel analyses
- Solvent Control for KF solvent monitoring and replacement in One Click™



For additional information see the Datasheets T5, T7 and T9.

Feature comparison table Titration Excellence line



		T5	T7	T9
One Click™ Titration	User specific Homescreen with Shortcuts	•	•	•
	Shortcuts per user ¹	24	24	24
	KF Solvent Control	•	•	•
Hot Plug and Play	Solvent Manager	•	•	•
	USB printer	•	•	•
	USB memory stick	•	•	•
	USB barcode reader	•	•	•
Security	LevelSens	•	•	•
	LogStraight Fingerprint Reader	•	•	•
Automation	InMotion™ Autosamplers	•	•	•
	DispenSix liquid handler	–	1	2
	Rondolino automated titration stand	•	•	•
	InMotion KF Oven Autosamplers	–	•	•
Burette drives	Max. number to dose and titrate	1 (internal) + 1 external	1 (internal) + 3 external	1 (internal) + 7 external
	Max. number to dose only	+ 2 external		
Method and series	Max. number of user methods	150	150	150
	Learn titration	•	•	•
	Karl Fischer Methods Volumetric	V2OS equivalent methods	•	•
	Karl Fischer Methods Coulometric	C2OS equivalent methods	•	•
	Bromine Index determination	•	•	•
	Thermometric TAN	•	•	•
	Accompanying stating	–	•	•
	Ion Standard addition	•	•	•
	SmartChemical	•	•	•
	SmartSample	•	•	•
	Number of method functions per method	15	60	150
	Number of loops per method	1	3	6
	Continuous run	–	•	•
	if...then conditions	–	–	•
	Result buffer	–	–	•
	Series sequences	–	10	10
	Number of samples per series	303	303	303
	Predefined METTLER TOLEDO methods	> 60	> 70 (incl. KF methods)	> 70 (incl. KF methods)
	Task list	Number of tasks	10	10
Number of tasks running in parallel		1	1	2
Online help		•	•	•
Parallel titration including KF		–	–	•
Expandable		–	to T9	–
Status light and event sounds		•	•	•
Data Export/Printing	RS-232, USB, Ethernet, PDF	•	•	•
Sensor Boards	pH/mV or conductivity or coulometry	1	2/1 ²	3/1 ²
	Potentiometric	2	4/2 ²	6/2 ²
	Polarized	1	2/1 ²	3/1 ²
	Reference	1	2/1 ²	3/1 ²
	PT1000	1	2/1 ²	3/1 ²
	Conductivity	1/0 ²	2/0 ²	3/0 ²
PC software	LabX® Titration connectivity: Express and Server	•	•	•
Homogenizer		TTL	RS/TTL	RS/TTL
Languages	English / German / French / Spanish / Italian / Chinese / Russian / Polish / Korean / Portuguese			

¹ Unlimited with T5, T7 and T9 titrators when connected with LabX® Titration Software

² 4/2 means for example: maximum number of inputs is 4, 2 are already available in standard delivery

For Every Purpose The Perfect Match



Density and Refractometry

The multitiered LiquiPhysics system reliably measures density, refractive index and related values such as °Brix, HFCS, alcohol concentrations or API gravity. It can be automated and upgraded to multiparameter systems for simultaneous determination of additional parameters such as pH / conductivity, color, acidity and more.



Melting Point and Dropping Point

Multiple methods such as melting, boiling, cloud, slip melting, dropping and softening point can be used to characterize a substance and analyze its properties. METTLER TOLEDO's Melting Point and Dropping Point Excellence Systems offer the possibility of measuring these thermal values accurately, automatically, and with compliance to international standards.



UV/VIS Spectrophotometers

The new UV/VIS Excellence spectrophotometers from METTLER TOLEDO optimize spectroscopic workflows. FastTrack™ Technology makes for speedy and reliable measurements with in a very compact footprint. Trustworthy performance is combined with intuitive and efficient One Click™ operation for a wide range of applications.



LabX® Titration: the software wizard for simple and efficient titrations

Secure data archiving in data base, efficient data management with control charts and individual search filters, quick and comprehensive method development for all applicative challenges and complete traceability of your data thanks to user management, audit trail, method history and electronic signature.

www.mt.com/titration

For more information

One Click is a Registered Trademark of METTLER TOLEDO in Switzerland, the European Union, Russia and Singapore.
LabX is a Registered Trademark of METTLER TOLEDO in Switzerland, USA, China, Germany and a further 13 countries.



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