

 **Metrohm**

s w i s s m a d e 

titrando[®]

888/890

Enter the Titrando world





888 Titrando – potentiometric titrator
890 Titrando – Karl Fischer titrator



- Touch Control with large color screen

- Titration software PC Control or **tiamo**™ for operation via PC

- Intuitive operation

- Intelligent Exchange Units

- Intelligent electrodes «iTrodes» for the 888 Titrandos

- Potentiometric titration with the 888 Titrandos

- Karl Fischer titration with the 890 Titrandos

- Sample Processor control

- Lab Link for Intranet and Internet

- Online help

- Complies with FDA regulation 21 CFR Part 11

- USB interfaces for sample changer, printer, PC keyboard, barcode reader...

Overview of the 888 Titrande and 890 Titrande



	888 Titrande	890 Titrande
Intelligent dosing elements for titration	1 integrated Dosimat for Exchange Unit	1 integrated Dosimat for Exchange Unit
Additional dosing elements (dispensing only)	3 x 805 Dosimat with Exchange Unit	3 x 805 Dosimat with Exchange Unit
	3 x 800 Dosino with Dosing Unit	3 x 800 Dosino with Dosing Unit
Intelligent Exchange Unit with integral data chip	Yes	
Increments per cylinder volume (Exchange Unit)	20'000	
Measuring interface for pH, U/mV, T/°C	1	–
Intelligent electrodes «iTrodes»	1	–
Measuring input for polarizable electrodes	1	
Operation, dialog	Touch Control, PC Control or <i>tiamo</i> TM	
Stirrers, titration stand	801 Stirrer (magnetic) or 802 Stirrer (rod) with 804 Ti Stand or 803 Ti Stand (KF)	
Connections for stirrers and intelligent dosing elements	4 MSB connections (Metrohm Serial Bus, Daisy Chain)	
Connection for sample changer	1 sample changer via USB	
Connections for balances, printer, PC, PC keyboard, barcode reader and/or Lab Link	Via 2 USB Slave Ports, RS-232/USB Box (option)	
Temperature sensor	Pt 1000 or NTC	–
Differential amplifier	Option	–
Real-time curve display on Touch Control or PC screen	Yes	
DET Dynamic equivalence-point titration	Yes	–
MET Monotonic equivalence-point titration	Yes	–
SET Titration to preset endpoints with automatic conditioning	Yes	–
KFT Volumetric Karl Fischer titration with automatic conditioning	–	Yes
MEAS Measuring mode for pH, U/mV, T/°C, I_{pol} , U_{pol}	Yes	–
CAL Calibration with automatic buffer recognition	Yes	–
Additional titration curve evaluation for: fixed endpoints, pK values (HNP)	Yes	–
Comprehensive GLP/GMP functions; complies with FDA 21 CFR Part 11	Yes	

Uniquely intelligent – easy to operate

Call up the method – press start

Standard user methods facilitate familiarization with the system and allow the Titrando to be used immediately. By using our methods you can profit from our many years of experience in the titration field. All titration methods developed on Metrohm Titrinos can be converted into Titrando methods automatically using a PC. As storage media for your methods, sample data and results there are the Titrando itself, a memory card or the PC with its numerous possibilities.

Intelligence creates transparency

Operating the Titrando System is simple and intuitive. In addition, the following tools make life easier for the Titrando user:

- The «Quick Access» function (direct parameters) allows direct access to the parameters required for the given application. This means that it is no longer necessary for you to click your way through different operating levels!
- The «Help» fixed key shows a content-related help text in the display. The «Follow me» help function is available when working with a PC. Continuous explanations about the current surroundings are given in a separate window and further possible procedures are indicated.
- The standard user methods can be modified to suit your requirements. Method templates and calculation formula templates are available for developing your own methods. Methods can be stored under meaningful method names (32 characters) and structured directories can be used; this makes sorting, identification and searching much easier.
- Whereas in the expert dialog all settings are available, the routine dialog can be freely configured, i.e. it can be custom-made to meet the requirements of the particular user. This means that users can load their «profiles» from the personal Keycard and see only those operating elements that they actually need.



titrando[®]

Brainy dosing elements with certification

Metrohm's Exchange Unit sets new standards with regard to reliability. Each Exchange Unit is equipped with a data chip. The Titrando automatically reads from it all the data that it needs to carry out the titration properly, i.e. type of reagent, titer, last titer determination, shelf-life data and much more. In addition, the Titrando compares the data it has obtained with the selected method and carries out a plausibility test. If the result is negative then a clear error message appears.

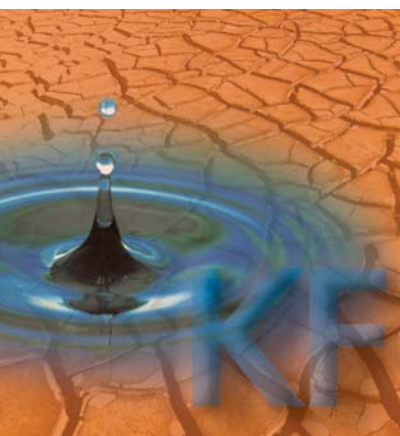
In addition, each Exchange Unit is provided with serial and cylinder numbers and is supplied with a certificate of its own. The Titrando checks the preset intervals for the titer determination of the titrant. This ensures that work is always carried out with the exact titer.



titrando[®]



Karl Fischer titration with the 890 Titrando



The sophisticated control algorithm and the increased volume resolution of the 890 Titrando's intelligent Exchange Unit guarantee highly precise results combined with easy and intuitive user guidance.

The KF icons show you at a glance whether the instrument is still busy conditioning or whether you can start the water determination.



The iodine drop indicates the KF reagent addition during conditioning.



Conditioning is finished and the sample can be added.

The electrode test and the newly created parameter «safety stop» prevent cell run-over during conditioning. If, for example, the electrode is not connected correctly or the titration cell is very humid, conditioning is stopped after a given time or a given volume of KF reagent added. This new feature increases work safety in your laboratory.

The 803 Ti Stand for KF titration

Use the 803 Ti Stand for stirring and manually exchanging the spent titration vessel contents. With the integrated membrane pump, solvent can be aspirated or added without the cell having to be opened. This translates into vastly reduced conditioning times.



The Titrandos in the modern laboratory

Touch Control = user comfort

The Touch Control is a decidedly ergonomic and modern operating element. You can hold it in your hand, put it on the laboratory bench or use a holder (option) to attach it to a rod or hook it onto the wall. These last two possibilities save space and also protect the Touch Control from chemicals. Up to three Titrandos can be controlled by a single Touch Control.

Titrandos and PC – a harmonic duo

No matter whether you operate the Titrandos with the Touch Control and your fingers or via a PC and a mouse – both appearance and operation are practically identical. Methods and determinations are 100% compatible. The titration software *tiamo*[™] – titration and more – opens up many other possibilities such as database functionality, parallel titration with several instruments and much more.

Data management is knowledge management

The data that your Titrandos system provides you with can be printed out and stored in a conventional manner. However, all advanced data management functions are available, for example storage on a PCMCIA card (CompactFlash) that is simply inserted in the Touch Control, in the PCMCIA port of the PC or an appropriate card reader. If you work with PC Control or *tiamo*[™], you can use all the storage options offered by the PC world, and on request the Titrandos can produce a machine-readable PC/LIMS report.

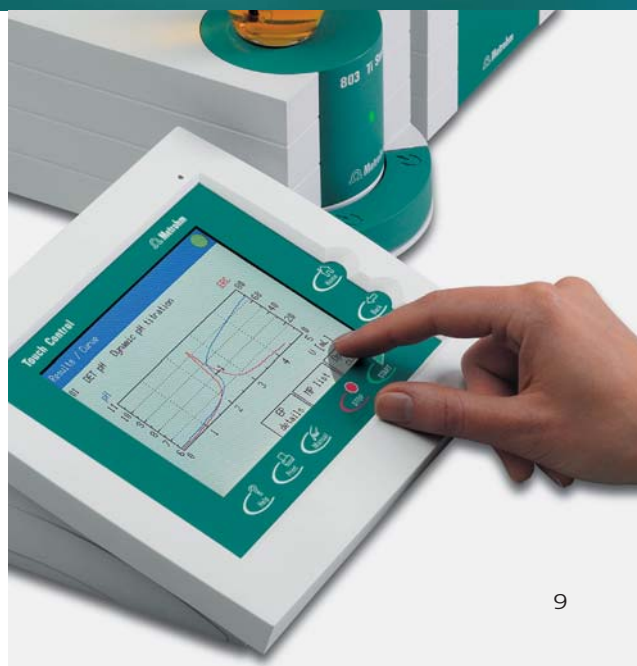
Lab Link

Lab Link opens up internal networks to the Titrandos and makes it Internet-compatible, with all that this implies. In this way, the Titrandos can be integrated into LIMS, methods and determinations can be downloaded from the internal networks or saved on them, printers can be used for printing out analysis reports. The Titrandos is even accessible from the office by remote control.

Compatibility and traceability

The Titrandos System is entirely oriented towards quality management in the laboratory and offers the following possibilities:

- Auto-diagnostic test after switching on.
- Monitoring of validation and service intervals.
- Monitoring of the calibration data of sensors.
- Monitoring of titers and results.
- All changes to the methods are documented.
- Strict control of rights of access using login and password, complying with FDA Regulation 21 CFR Part 11 regarding «electronic signature» and «electronic record».



Integrated automation

Increasing sample numbers, time-consuming sample preparation steps and unattended overnight operation are good reasons for using sample changers. The 888 and 890 Titrandos have the necessary intelligence to control sample changers. Whether you require small or large sample capacity, one or two working stations, sample metering, sample preparation, liquid handling, rinsing and calibration of the electrodes – the 814 USB Sample Processor and 815 Robotic USB Sample Processor XL offer a high degree of automation at low investment costs. It's amazing: You simply connect the sample changer to the Titrandos' USB port and the world of automation opens up to you. Our sample changer brochure supplies detailed information on the automation possibilities.



Ordering information, options



2.888.0110 888 Titrande with Touch Control
 1 x 2.888.0010 888 Titrande
 1 x 2.840.0100 840 Touch Control
 1 x 2.801.0040 801 Stirrer (magnetic)
 1 x 6.3026.220 Intelligent Exchange Unit (20 mL)
 1 x 6.0262.100 Ecotrode plus
 1 x 6.2104.020 Electrode cable

2.888.0210 888 Titrande with **tiamo™** light
 1 x 2.888.0010 888 Titrande
 1 x 6.6056.131 **tiamo™** 1.3 light
 1 x 6.2151.000 Cable USB A – Mini DIN 8 pins
 1 x 2.801.0040 801 Stirrer (magnetic)
 1 x 6.3026.220 Intelligent Exchange Unit (20 mL)
 1 x 6.0262.100 Ecotrode plus
 1 x 6.2104.020 Electrode cable

2.890.0110 890 Titrande with Touch Control
 1 x 2.890.0010 890 Titrande
 1 x 2.840.0100 840 Touch Control
 1 x 2.803.0010 803 Ti Stand
 1 x 6.3026.210 Intelligent Exchange Unit (10 mL)

2.890.0210 890 Titrande with **tiamo™** light
 1 x 2.890.0010 890 Titrande
 1 x 6.6056.131 **tiamo™** 1.3 light
 1 x 6.2151.000 Cable USB A – Mini DIN 8 pins
 1 x 2.803.0010 803 Ti Stand
 1 x 6.3026.210 Intelligent Exchange Unit (10 mL)

Optional accessories

2.805.0010 805 Dosimat
 6.3026.120 Intelligent Exchange Unit 1 mL for 805 Dosimat
 6.3026.150 Intelligent Exchange Unit 5 mL for 805 Dosimat
 6.3026.210 Intelligent Exchange Unit 10 mL for 805 Dosimat
 6.3026.220 Intelligent Exchange Unit 20 mL for 805 Dosimat
 6.3026.250 Intelligent Exchange Unit 50 mL for 805 Dosimat
 2.800.0010 800 Dosino
 6.3032.120 Intelligent Dosing Unit 2 mL for 800 Dosino
 6.3032.150 Intelligent Dosing Unit 5 mL for 800 Dosino
 6.3032.210 Intelligent Dosing Unit 10 mL for 800 Dosino
 6.3032.220 Intelligent Dosing Unit 20 mL for 800 Dosino
 6.3032.250 Intelligent Dosing Unit 50 mL for 800 Dosino
 2.804.0040 804 Ti Stand with support
 2.802.0040 802 Stirrer (rod) for 804
 2.847.0010 USB Lab Link
 6.2148.020 RS-232/USB Box





s w i s s m a d e 



Metrohm AG
CH-9101 Herisau/Switzerland
Phone +41 71 353 85 85
Fax +41 71 353 89 01
www.metrohm.com
info@metrohm.com
www.titrando.com

