

916 Ti-Touch, 915 KF Ti-Touch and 917 Coulometer



Compact titrator for routine analysis

Technical specifications

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| | 916 Ti-Touch with Rod stirrer | 916 Ti-Touch with magnetic stirrer | 915 KF Ti-Touch | 917 Coulometer |
|---|---|---|-----------------|---|
| Dosing element with Intelligent Exchange Unit/Dosing Unit with an integrated data chip | Max. 2 × 800 Dosino or 2 × 805 Dosimat | | | |
| Dosing steps per cylinder content | 800 Dosino: 10,000 pulses; 805 Dosimat: 20,000 pulses | | | |
| Operation, dialog | Touch Control | | | |
| Stirrers, titration stand | Incl. 802 Rod stirrer additionally 1 × 801 Magnetic stirrer or 1 × 802 Rod stirrer or 1 × 803 KF Titration Stand | Built-in magnetic stirrer, additionally 1 × 801 Magnetic stirrer or 1 × 802 Rod stirrer or 1 × 803 KF Titration Stand | | |
| Attachment of Dosimats, Dosinos, stirrers | 2 MSB connectors (Metrohm Serial Bus, Daisy Chain) | | | |
| Attachment of Sample Changers | 1 Sample Changer (810, 814, 815) via USB 885 Compact Oven SC via Remote Box (optional) | | | 885 Compact Oven SC via Remote Box (optional) |
| FDA Compliance | YES | | | |
| Attachment of balances, printer, PC, PC keyboard, barcode reader | Via USB Slave Port, USB/RS-232 Converter (optional) | | | |
| Generation of forge-proof PDF reports without a PC | YES | | | |
| USB flash drive for saving methods, results and PDF reports | YES | | | |
| Ethernet interface to connect to a local network for data archiving or printing on network printers | YES | | | |
| Temperature sensor | Pt1000 or NTC | | | |
| «iTrodes» – intelligent electrodes | YES | | – | – |
| GLP-compliant electrode test | YES | | – | – |
| I_{pol} and U_{pol} – integrated programmable polarizer | YES | | | |
| Real-time curve display on the Touch Control (90 mm × 120 mm, high-resolution color display) | YES | | | |
| DET Dynamic Equivalence-point Titration | YES | | – | – |
| MET Monotonic Equivalence-point Titration | YES | | – | – |
| SET Titration to a preset endpoint with automatic conditioning | YES | | – | – |
| STAT (enzymatic and pH-STAT titrations) | YES | | – | – |
| MAT Manual Titration | YES | | – | – |
| KFT Volumetric Karl Fischer Titration | – | – | YES | – |
| KFC Coulometric Karl Fischer Titration | – | – | – | YES |
| BRC Coulometric Bromine Index Titration | – | – | – | YES |
| MEAS Measuring mode for pH, U/mV, T/°C | YES | | – | – |
| CAL Calibration with automatic buffer recognition | YES | | – | – |
| MEAS Measuring mode for I_{pol} , U_{pol} , T/°C | – | – | YES | |
| Method storage, sample data storage, result memory, data storage | YES | | | |
| Dialog languages | German, English, Spanish, French, Chinese, Italian, Portuguese, Polish, Russian, Korean, Japanese | | | |
| Favorites for quick method access | 14 (per user) | | | |
| Automatic titration start | – | – | – | YES |



Ti-Touch – the modern way to titrate

«Reduce to the max» – this is the Ti-Touch concept. The compact titrator from Metrohm offers maximum performance in routine analysis in the smallest possible space:

- **Maximum system integration:** buret, stirrer and control module in one practical unit.
- **Maximum data security and network integration – without a PC!**
 - FDA Compliance: All Ti-Touch models comply with FDA-regulation 21 CFR, Part 11.
 - Generate forge-proof reports in PDF format and save them to a USB flash drive or to the network.
 - Ethernet interface for direct access to the Intranet. Method Printing on network printers, method archiving and determination data storage directly in the LIMS.
 - USB interface for direct connection to a printer (A4 or compact), a USB flash drive or a barcode reader.
- **Maximum user safety:** no-touch reagent replacement thanks to patented Dosino technology.
- **Maximum ease of use:** 14 short cut icons per user to start favorite methods at a single touch.

916 Ti-Touch – the compact titrator for potentiometric titration

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The 916 Ti-Touch is the compact titrator designed for potentiometric titration. The instrument supports all titration modes: DET (dynamic equivalence point titration), MET (monotonic equivalence point titration), SET (titration to one or two specified endpoints), STAT (enzymatic and pH-STAT titrations), and MAT (manual titration).

- **Save and print data, etc. – without a PC**

USB interface for printer, keyboard or barcode reader. Save methods and determination data directly to a USB flash drive for uploading again at a later date.

- **Direct access to Intranet and LIMS – without a PC**

Ethernet interface: direct access to the Intranet and LIMS for method archiving and data management.

- **Affordable automation**

The 810 Sample Processor enables fully automated analysis for up to 24 samples.

- **Plug-and-play operation**

All system components are recognized and registered automatically upon connection.

- **More efficiency thanks to 2 MSB connectors**

Two installed Metrohm Serial Bus (MSB) ports permit the connection of a second titration stand complete with buret, e.g. for the sequential titration of total acidity and chloride.



- **Contact-free reagent replacement**

No contact with reagents thanks to the patented 800 Dosino technology.

- **Intelligent rod stirrer**

The stirrer rotational speed adapts automatically.

- **Incorrect results excluded**

All system components (electrodes, exchange units, etc.) and measurement results are monitored and malfunctions area displayed – in plain text.

- ***tiBase* titration database for perfect workflow**

Store determination data on a USB flash drive or in your network for direct importing from there into *tiBase*.

- **Paperless PDF reports**

Generate forge-proof PDF reports without a PC and save them to a USB flash drive or to the network.

- **Personalized touchscreen for fast method start**

Up to 14 methods per user can each be linked to a favorites icon. Standard methods start with a single tap on the touchscreen.



915 KF Ti-Touch – the titrator for volumetric Karl Fischer titration

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Just as with the 916 Ti-Touch, the 915 KF Ti-Touch Karl Fischer version is also an outstanding instrument: buret, stirrer and operating module are integrated in a single, compact system unit. This is not only practical but also and in particular saves a great deal of space on the laboratory table.

- **Affordable automation**

The 810 Sample Processor enables fully automated analysis for up to 24 samples.

- **Paperless PDF reports**

Generate forge-proof PDF reports without a PC and save them to a USB flash drive or to the network.

- **Save and print data, etc. – without a PC**

USB interface for printer, keyboard or barcode reader. Save methods and determination data to a USB flash drive for uploading again at a later date.

- **Personalized touchscreen for fast method start**

Up to 14 methods per user can each be linked to a favorites icon. Standard methods start with a single tap on the touchscreen.

- **Plug-and-play operation**

All system components are recognized and registered automatically upon connection.

- **Access the Ethernet and LIMS – without a PC**

Direct access to the Intranet and LIMS for method archiving and data management.





- **Contact-free reagent replacement**

Contact with KF reagents is avoided with the patented Dosino technology. The moment of replacement is freely selectable.

- **Keeping track thanks to KF icons**

KF icons show whether the instrument is still conditioning or if water determination can now be started.

- **tiBase titration database for perfect workflow**

Store determination data on a USB flash drive or in your network for direct importing from there into *tiBase*.

- **«Safety Stop» prevents the cell from overflowing**

The electrode test and the «Safety Stop» parameter prevent cell overflow during conditioning. If, for example, the electrode is inadvertently not properly connected or the titration cell is very humid, conditioning will be discontinued after a certain time or after a certain volume of KF reagent has been added. This feature enhances work safety in your laboratory.

- **Integrated pump for maximum safety**

Thanks to the integrated pump, the titration cell can be emptied and filled again afterwards with fresh solvent at the push of a button.



917 Coulometer – the compact titrator for coulometry

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The 917 Coulometer is the compact titrator for coulometric Karl Fischer titration. The operating module, stirrer, and pump for reagent exchange are combined into a single, space-saving, compact instrument.

- **Automation is always an option**

Measurements can be easily automated with the 885 Compact Oven Sample Changer.

- **Paperless PDF reports**

Generate forge-proof PDF reports without a PC and save them to a USB flash drive or to the network.

- **Personalized touchscreen for fast method start**

Up to 14 methods per user can each be linked to a favorites icon. Standard methods start with a single tap on the touchscreen.

- **Reagent monitoring for maximum safety**

The reagent is continuously monitored. Once self-defined criteria (number of added samples, amount of added water, etc.) are met, the user is prompted to replace the reagent.





- **Integrated pump for optimum convenience**

The integrated pump enables the titration cell to be emptied and then refilled with fresh reagent at the touch of a button. Contact with reagents is completely avoided.

- **Keeping track with KF icons**

KF icons show whether the instrument is still conditioning or if water content determination can now be started.

- **Automatic titration start**

No manual titration start required. The instrument automatically begins the titration after the sample has been added.

- **tiBase titration database for maximum convenience**

Save determination data to a USB flash drive or to a network drive, from where it can be imported directly into the **tiBase** database software.

FDA compliance

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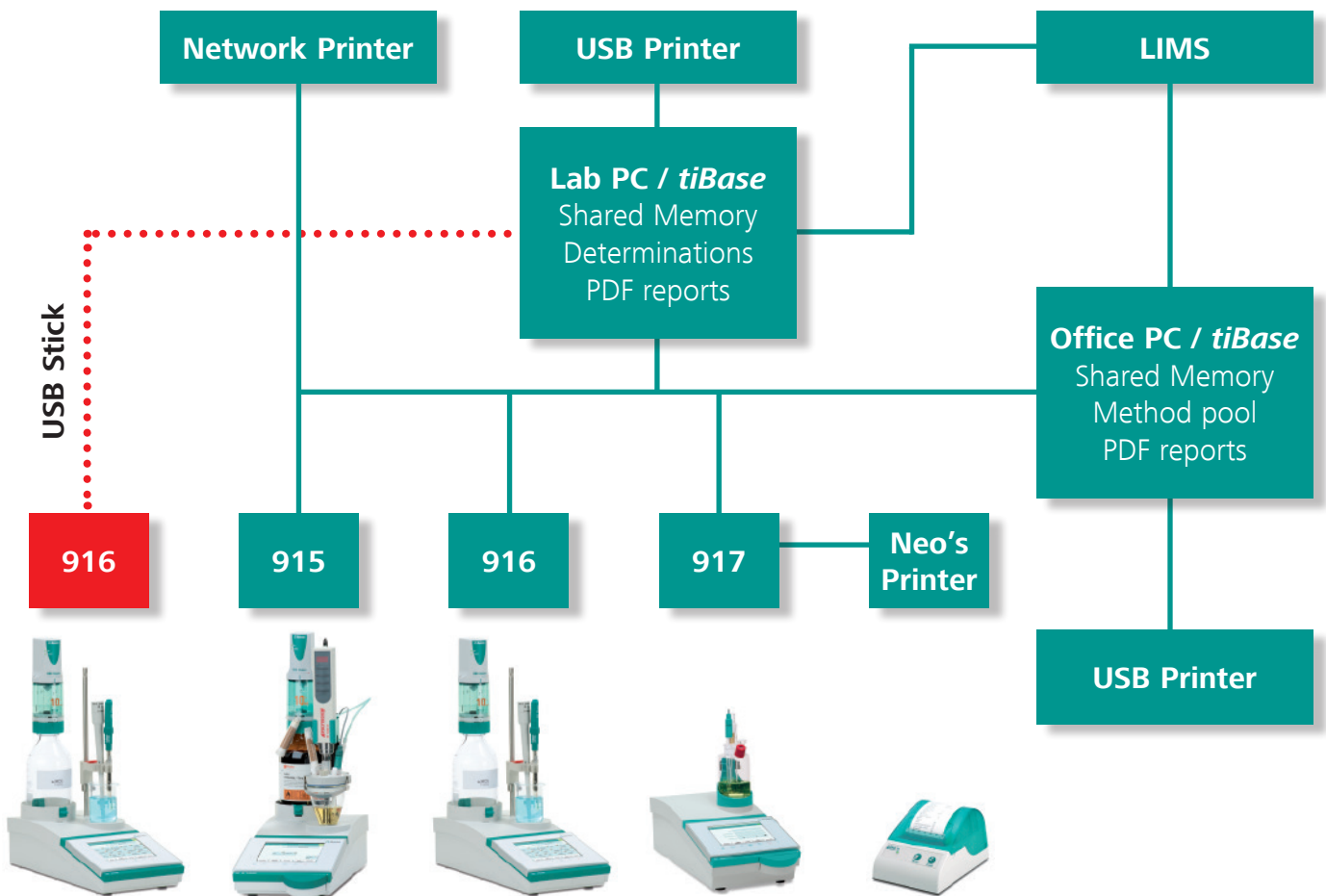
All members of the Ti-Touch family now fully comply with FDA-regulation 21 CFR, Part 11. This includes:

- **Sophisticated user administration**
Allocate access rights to each user in accordance with your company's security policy.

- **Complete Audit Trail**
Each action performed on a Ti-Touch Titrator is stored automatically in the Audit Trail. This means that you can obtain a detailed record of which employee performed what action at what point in time.

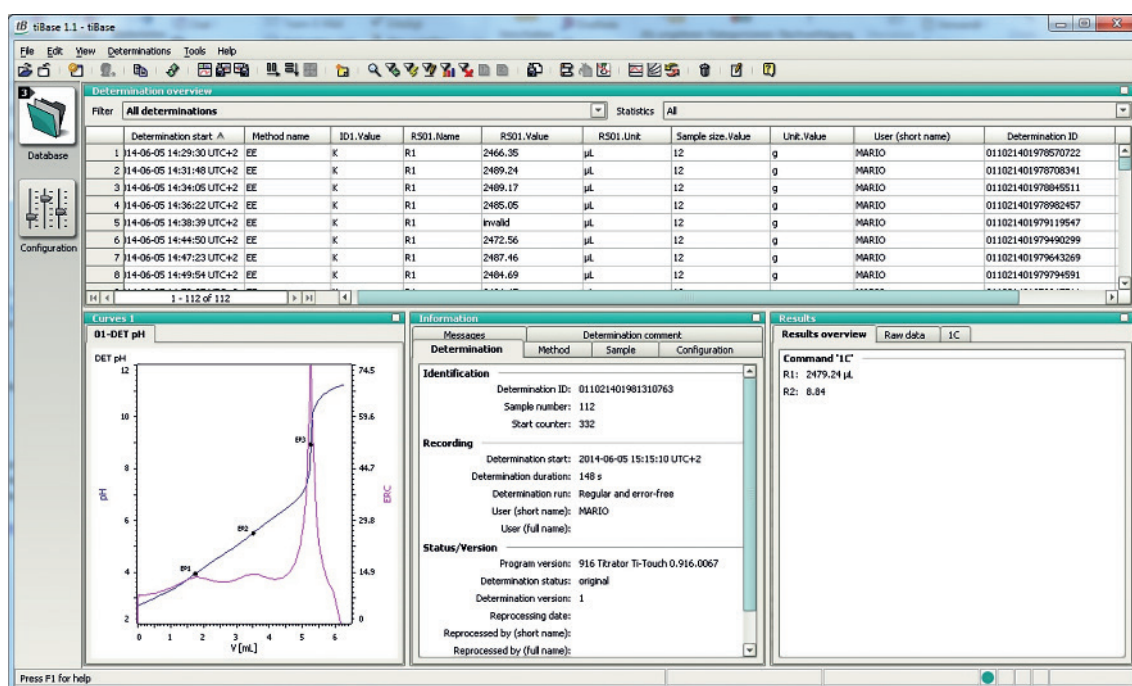
- **Complete traceability**
Who carried out a determination and when? What titrator was used? What alterations were made to the determination and by whom? All this is recorded permanently for each individual determination. The unique traceability of the Ti-Touch titrators leaves no question unanswered.

Ti-Touch in the networked laboratory



Integrate the Ti-Touch Family in your networked laboratory: automatically export PDF reports/determination files to your LIMS or into *tiBase* on your lab/office Computer, print on local or network printers, and share titration methods from a centralized network directory. Even data from instruments not connected to the network can be transferred via manual export to a USB memory stick.

tiBase – modern titration data management



Manage and archive your titration data

Either your Ti-Touch is directly connected to your network or titration data is manually imported from a USB stick: Your determinations are therefore safely archived, giving you full traceability of all aspects of the determinations. This software will greatly facilitate your work, because you can search for and filter determinations.

Straightforward reprocessing

This is particularly helpful if you wish to correct the sample weight or use a different formula to calculate results, for example. It goes without saying that all changes that are made to a determination are recorded and that the original determination can be restored. The two-level

electronic signature function secures your titration data: Once a determination has been signed on both levels, it is protected against further manipulation.

State-of-the-art connectivity – convenient data exchange and reporting

Data export from *tiBase* is easily done and such data is available in various formats (e.g. .csv, .slk, .xml) for further processing in Microsoft Office applications. Moreover, *tiBase* enables you to create customized reports, giving you the freedom to include only the specific information you need.

810 Sample Processor

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Automation safeguards quality results

The 810 Sample Processor adds an important element to your application – automation. Why automate your application? Most importantly, to safeguard the quality of your results: If you have to manage a high sample

throughput, it is essential to ensure that each sample is processed with the same accuracy. Only this guarantees consistent, reproducible and, above all, precise results.

- **Analyse up to 24 samples completely unattended**

Straightforward automation for small to medium size sample series

- **Comprehensive liquid handling**

Connect up to 3 additional burets for dosing applications

- **Precise and reproducible results**

Use the integrated membrane pump to perform automated cleaning steps for better reproducibility

- **Minimize exposure to hazardous liquids**

Add optional external pumps for safe disposal of hazardous waste solutions

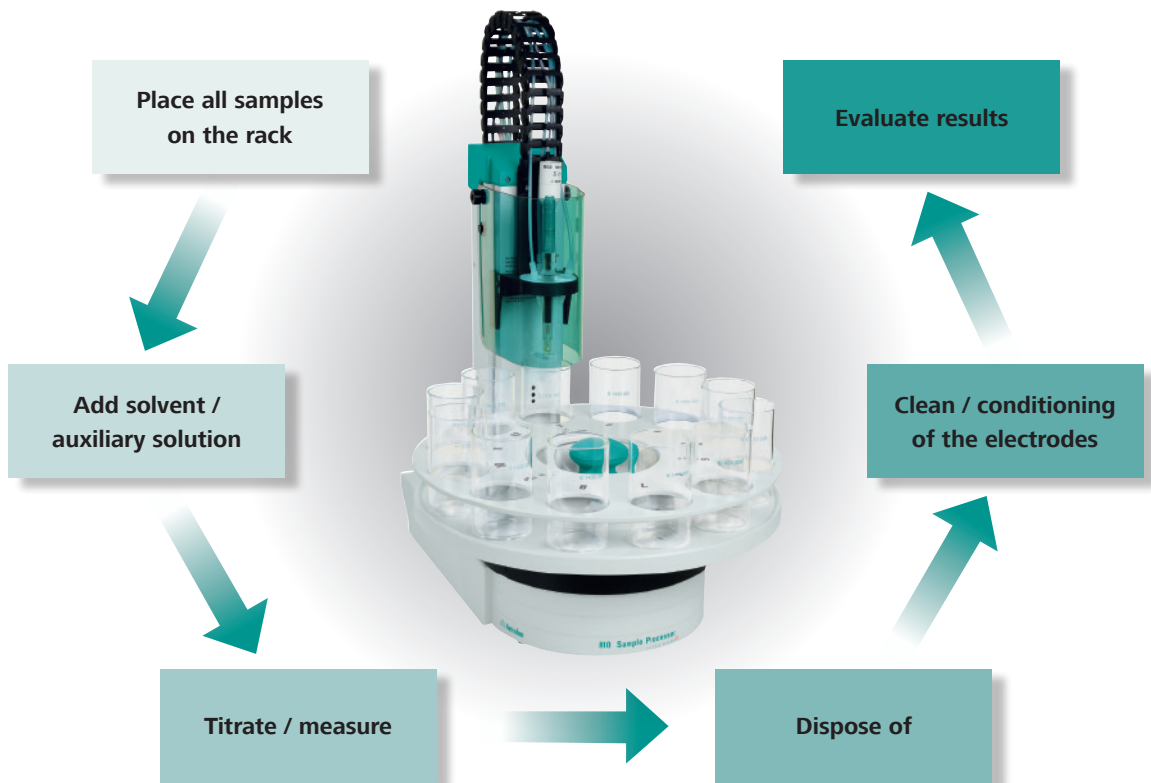


Work more comfortably

Your 810 Sample Processor is controlled with utmost precision. Once the methods have been saved on the easy-to-use Ti-Touch user interface, all you have to do is place your samples on the 810 Sample Processor and enter the sample data. Your samples are then analyzed fully automatically without any further intervention required.

Superior flexibility

The 810 Sample Processor comes with a built-in, space-saving membrane pump. However, it can be upgraded with external membrane or peristaltic pumps any time, if required.



The 810 offers a wide choice of sample racks for different sample beakers. Depending on the sample size between 12 and 24 beakers can be processed in a series unattended.

Available racks

| | |
|------------|-------------|
| 6.2041.310 | 12 × 250 mL |
| 6.2041.320 | 16 × 150 mL |
| 6.2041.340 | 24 × 75 mL |
| 6.2041.370 | 14 × 200 mL |
| 6.2041.380 | 14 × 8 oz |
| 6.2041.470 | 22 × 120 mL |



Ordering information

- 915 KF Ti-Touch**
2.915.0110 KF Ti-Touch
All-inclusive package** for volumetric KF titrations
- 2.916.0020 **916 Ti-Touch**
with Magnetic stirrer
- 916 Ti-Touch all-inclusive packages***
2.916.2010 Salt Ti-Touch*
All-inclusive package for the argentometric titration of chloride, etc.
- 2.916.3010 Oil Ti-Touch*
All-inclusive package for the nonaqueous acid-base titration of oil products
- 2.916.4010 Food Ti-Touch*
All-inclusive package for aqueous acid-base titration in foodstuffs, etc.
- 917 Coulometer**
2.917.0010 917 Coulometer with generator electrode with diaphragm
2.917.0110 917 Coulometer with generator electrode without diaphragm
2.917.1110 917 Coulometer with generator electrode without diaphragm and with 860 KF Thermoprep
2.917.2110 917 Coulometer with generator electrode without diaphragm and with 885 Compact Oven Sample Changer

*ready-to-use all-inclusive package contains 800 Dosino, 20 mL Dosing Unit, iConnect, i-Trode, 802 Rod stirrer, **tiBase** Demo version and comprehensive collection of applications.

ready-to-use all-inclusive package contains 800 Dosino, 10 mL dosing unit, electrode, accessories for safe reagent replacement and **tiBase Demo version.





Optional accessories

| | | |
|------------|--|--|
| 2.800.0020 | 800 Dosino as additional buret for titration or addition of auxiliary solutions | |
| 2.805.0010 | 805 Dosimat as additional buret for titration or addition of auxiliary solutions | |
| 6.2061.010 | Bottle holder for Dosino | as expansion to a second titration stand |
| 2.801.0040 | 801 Magnetic stirrer compl. | |
| 2.810.0010 | 810 Sample Processor | |
| 2.141.0100 | USB thermal printer Neo's | |
| 6.3026.110 | Intelligent exchange unit 1 mL | |
| 6.3026.150 | Intelligent exchange unit 5 mL | |
| 6.3026.210 | Intelligent exchange unit 10 mL | |
| 6.3026.220 | Intelligent exchange unit 20 mL | |
| 6.3026.250 | Intelligent exchange unit 50 mL | |
| 6.3032.120 | Intelligent dosing unit 2 mL | |
| 6.3032.150 | Intelligent dosing unit 5 mL | |
| 6.3032.210 | Intelligent dosing unit 10 mL | |
| 6.3032.220 | Intelligent dosing unit 20 mL | |
| 6.3032.250 | Intelligent dosing unit 50 mL | |
| 6.2148.010 | Remote Box MSB | |
| 6.2148.050 | USB/RS-232 Converter | |
| 6.2151.030 | Cable USB A – USB B / 0.6 m | |

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