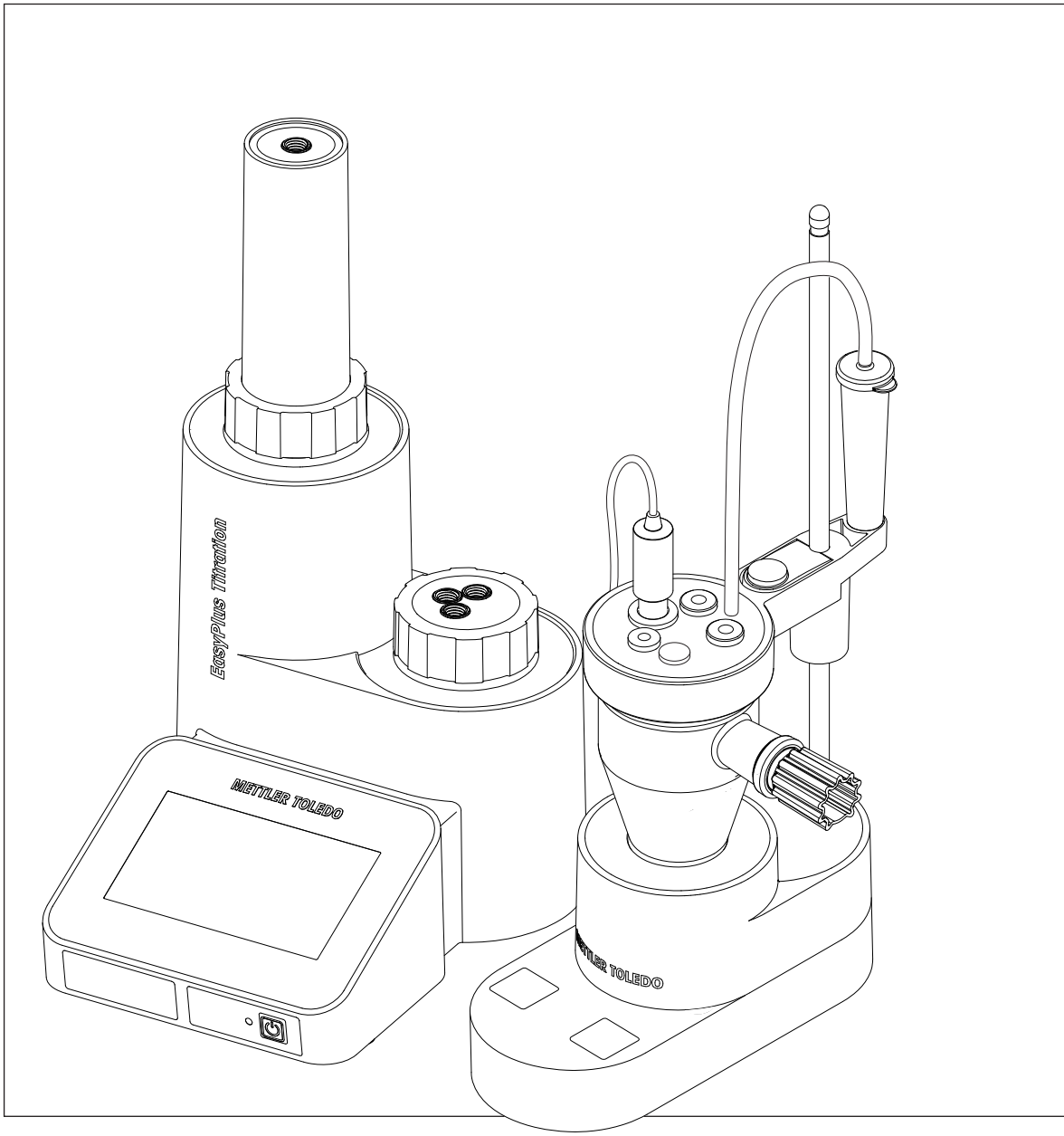
Operating Instructions

EasyPlus™ Titration

Easy KFV



METTLER TOLEDO

Table of Contents

1 Introduction

The EasyPlus™ titrator is especially designed for routine applications and is simply operated due to the Apps oriented user interface. The simple and intuitive navigation speaks your language and 14 others. The setup and installation process is supported by the EasySetup tutorial on the instrument, meaning that the titrator is up and running in the shortest possible time.

Titrators for your Samples

The instruments in METTLER TOLEDO's EasyPlus™ Titration line are modern with a small footprint for use in a wide variety of basic applications. The instrument is primarily developed for the use in quality control labs and for educational purposes.
The EasyPlus titrators perfectly combine simple, easy-to-understand operation with a high precision and reliability. Thanks to the App oriented user interface and the built-in know-how (iTitrate™ intelligence), operation could not be any simpler or intuitive.

The EasyPlus titrators can be controlled by touch screen and all measured data can be stored in the PC Software EasyDirect. All main functions can be started directly from the home screen on the touch screen via Longclick™ on the corresponding App, which makes routine use extremely simple.

The EasySetup guides you step by step through the installation menu and the help tool on the instrument explains all parameters. Installation, setup and operation of the instrument could not be any simpler.

Take advantage of our internet based service and support. Videos, FAQ's and a multitude of applications are just a click away. Visit us on:

www.mt.com/easyplustitration

If you have any additional questions, METTLER TOLEDO is always available to assist you.

2 Safety Notes

2.1 Definition of Signal Warnings and Symbols

Safety notes are marked with signal words and warning symbols. These show safety issues and warnings. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results.

Signal words

WARNING	for a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.
CAUTION	for a hazardous situation with low risk, resulting in damage to the device or the property or in loss of data, or minor or medium injuries if not avoided.
Attention	(no symbol) for important information about the product.
Note	(no symbol) for useful information about the product.

Warning symbols


General hazard


Electrical shock


Toxic substance


Inflammable or explosive substance


Acid / Corrosion

2.2 Product Specific Safety Notes

Your instrument meets the state of the art technology and complies with all recognized safety rules, however, certain hazards may arise in extraneous circumstances. Do not open the housing of the instrument: It does not contain any parts which can be maintained, repaired or replaced by the user. If you ever have problems with your instrument, contact your authorized METTLER TOLEDO dealer or service representative.

Intended use

This instrument is designed to be used as a titrator for volumetric titration in analytical laboratories and is suitable for the processing of reagents and solvents.

The use therefore requires knowledge and experience in working with toxic and caustic substances.

Use of this instrument requires knowledge and experience working with application specific reagents, which may be toxic or hazardous.

Location

The instrument has been developed for indoor operation and may not be used in explosive environments.

Place the instrument in a location which is suitable for the operation, protected from direct sunlight and corrosive gas atmosphere. Avoid powerful vibrations, excessive temperature fluctuations and temperature below 5 °C and above 40 °C.

Protective Clothing

It is advisable to wear protective clothing in the laboratory when working with the instrument.

A lab coat should be worn.

A suitable eye protection such as goggles should be worn.

Use appropriate gloves when handling chemicals or hazardous substances, checking their integrity before use.

Safety notes

WARNING

Risk of electric shock

Your instrument is supplied with a 3-pin power cable with an equipment grounding conductor.

a) Only 3-pin grounded electrical outlet and extension cables for connecting your instrument must be used.

b) Intentional disconnection of the equipment grounding conductor is prohibited.

WARNING

Risk of corrosion

Leaks in tubing connections and loose titration vessels are a safety risk.

a) Tighten all connections well by hand, avoiding applying excessive force to tubing connections.

b) Always test the titration vessel for firm seating in the titration head.

WARNING

Flammable solvents

All relevant safety measures are to be observed when working with flammable solvents and chemicals.

a) Keep all sources of flame away from the workplace.

b) When using chemicals and solvents, comply with the instructions of the producer and the general lab safety rules.

WARNING

Chemicals

All relevant safety measures are to be observed when working with chemicals.

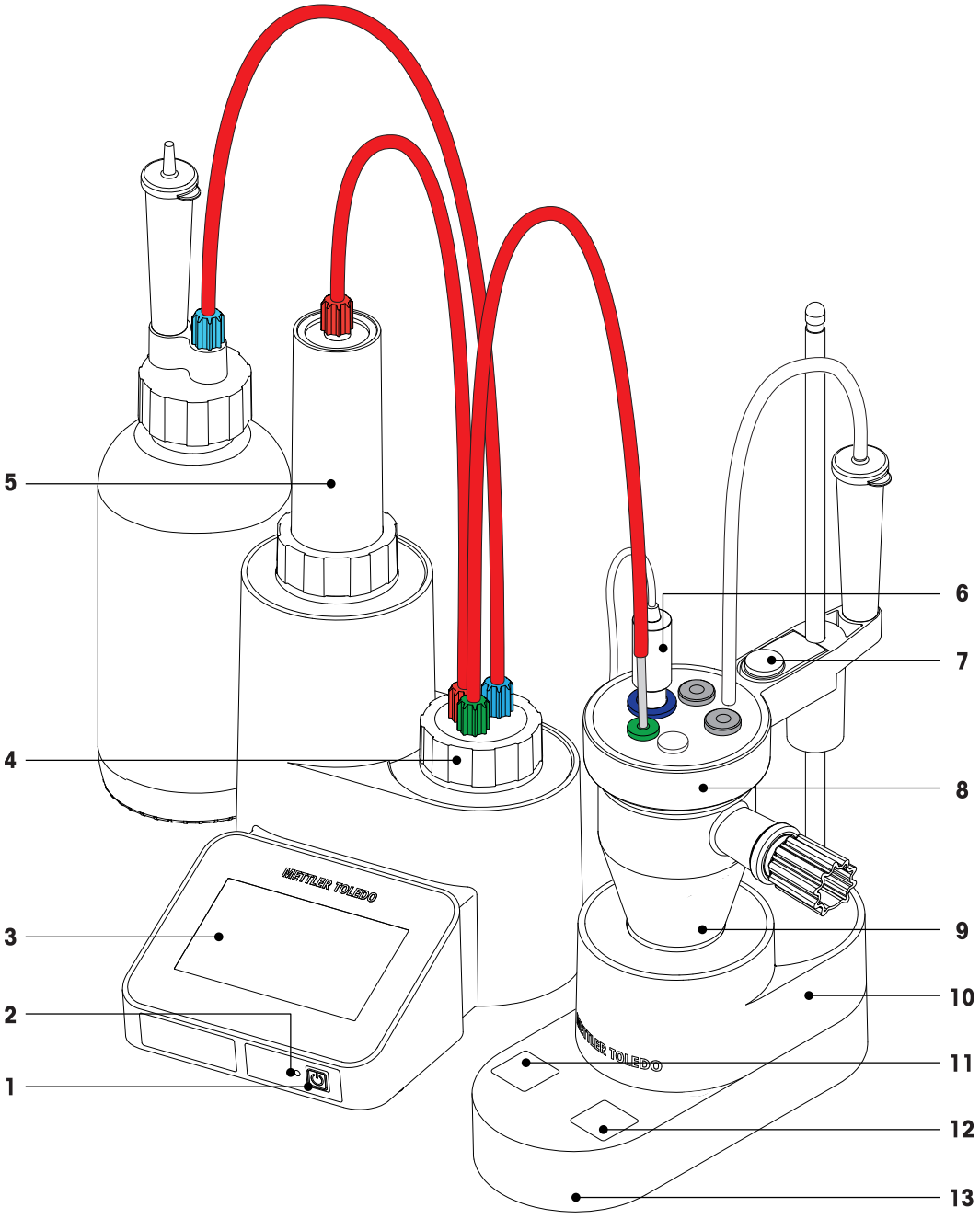
a) Set up the instrument in a well-ventilated location.

b) Any spills should be wiped off immediately.

c) When using chemicals and solvents, comply with the instructions of the producer and the general lab safety rules.

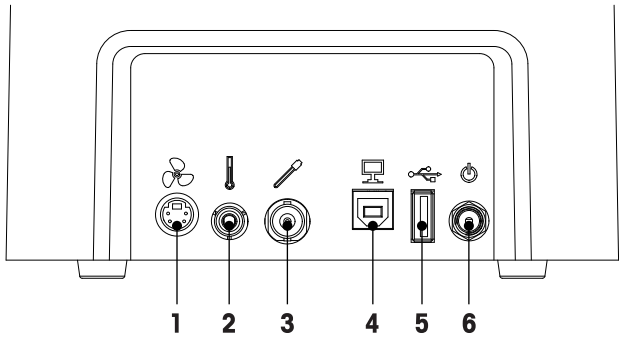
3 Design and Function

3.1 Overview



1	On/Off button	**2**	Status LED
3	Touch screen	**4**	Valve
5	Burette	**6**	Sensor
7	Release button	**8**	Titration head
9	Titration vessel	**10**	Stirrer (EasyStir KF)
11	Pump button (Drain)	**12**	Pump button (Fill)
13	Pump (EasyPump)		

Rear view

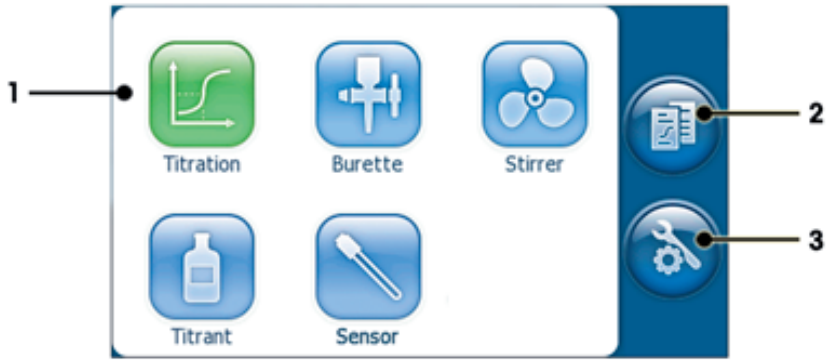


1	Socket for stirrer (Mini-DIN)	**2**	Not used
3	Socket for measuring sensor (BNC)	**4**	USB B interface for PC connection (EasyDirect PC Software)
5	USB A interface for printer and balance	**6**	DC socket for power supply

3.2 User interface

3.2.1 Home

The home screen is the main screen and appears after startup of the instrument. Tap and hold any of the home screen apps to start the last analysis without further navigation (LongClick™).



1	Apps for various functions	**2**	Select this menu item to display the results of the last analysis.
3	Select this menu item to make changes to the system settings and to perform diagnostics.		

3.2.2 Icons and buttons

Tap this menu item to return to the home screen.

Tap this menu item to go back to the previous screen.

Tap this menu item to start an action.

Tap this menu item to stop a running action.

Tap the arrows to page through parameter sets.

Tap the help icon to change to help mode. Then tap any of the parameters to get a specific help description.

Tap this icon to accept and close any entry screen.

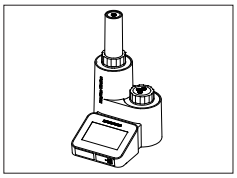
Tap this icon to reject and close any entry screen.

Tap this icon to print parameters or results.

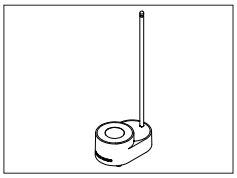
4 Putting into Operation

4.1 Scope of Delivery

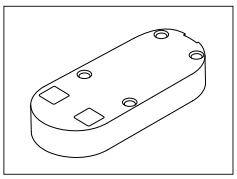
Check the completeness of the delivery. The following accessories are part of the standard equipment of your new instrument:



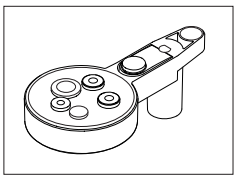
EasyPlus titrator incl. 10 mL burette



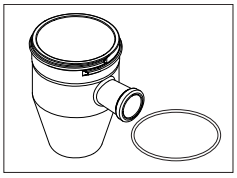
EasyStir KF



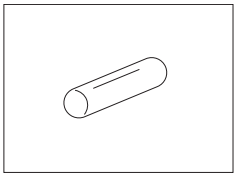
EasyPump



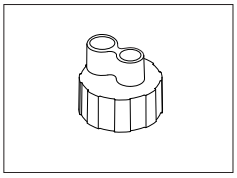
Titration head KF



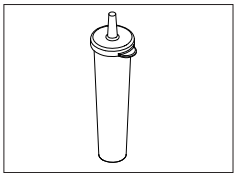
KF titration vessel
O-ring for KF titration vessel



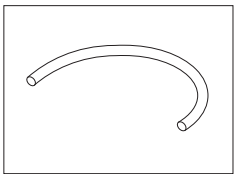
Magnetic stirrer bar



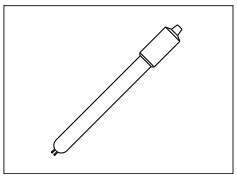
Bottle heads incl. flat seals (3 pcs.)



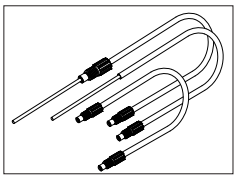
Drying tubes (4 pcs.)



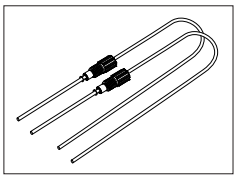
Tube cell-drying tube



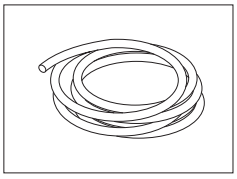
Measuring sensor



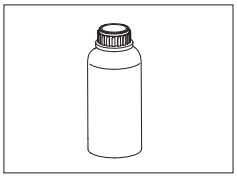
Tubing set instrument



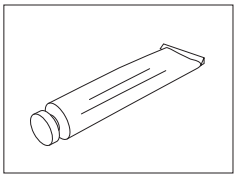
Tubing set EasyPump



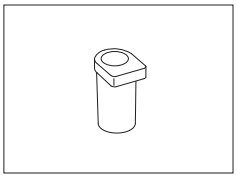
Silicon tubes EasyPump



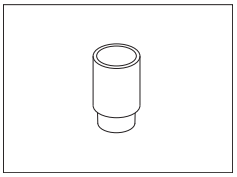
Molecular sieve



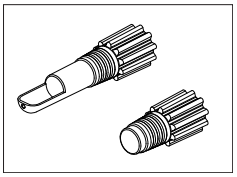
Silicone grease



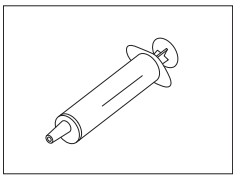
Stopper NS10



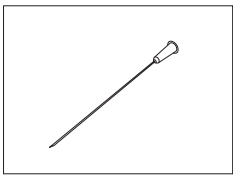
Septum NS10



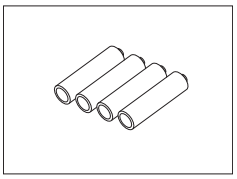
Weighing Boat
Stopper NS19



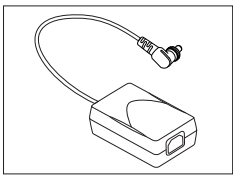
Syringes (3 pcs.)



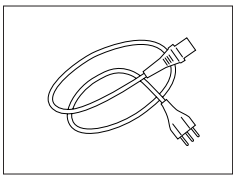
Needles for syringes (3 pcs.)



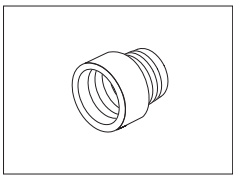
Batteries AA/LR6 EasyPump
(4 pcs.)



AC/DC power adapter



Country specific power cable



Bottle adapter incl. flat seal
(For China only)

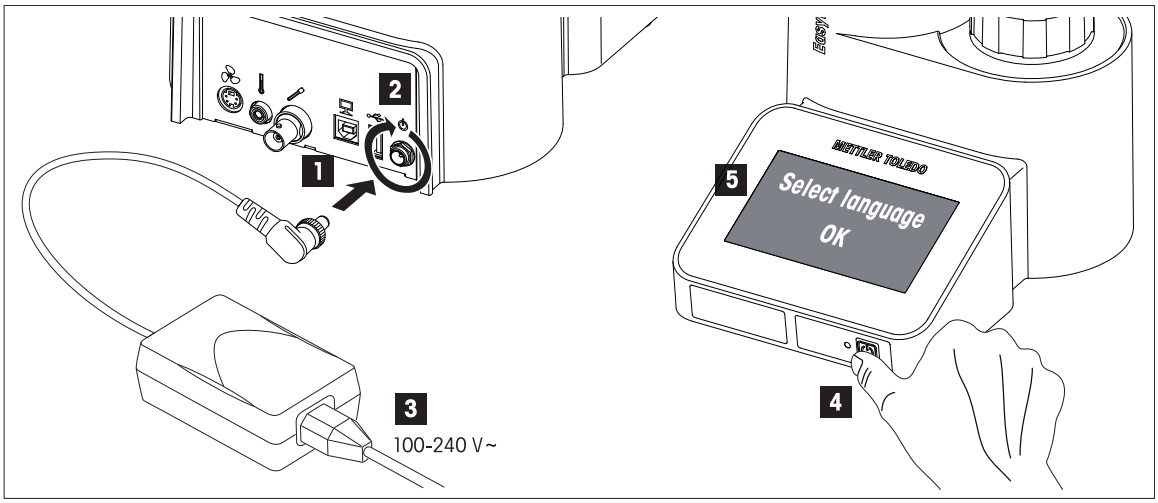
4.2 Installing power supply

The instrument is supplied with a universal AC adapter. The AC adapter is suitable for all line voltages in the range of 100 to 240 V, 50/60 Hz.

Attention

- Before installing, check cables for damage.
- Only 3-pin grounded electrical outlet and extension cables for connecting your instrument must be used.
- Ensure the cables are arranged so that they cannot be damaged or interfere with the operation.
- Take care that the AC adapter does not come into contact with liquids.
- The power plug must be accessible at all times.

Procedure



1 Connect the plug of the AC adapter with the DC socket of the instrument.

2 Secure the plug by firmly tightening the knurled nut.

3 Connect the 3-pin grounded power cable to the AC adapter and then connect the power cable to electrical outlet.

4 Push the **On/Off** button to switch on the instrument. The LED next to the button flashes as the system starts up and then remains permanently lit.

5 Select the desired language on the touch screen and confirm with [**OK**].

⇨ Follow the instructions on the screen to setup the instrument.

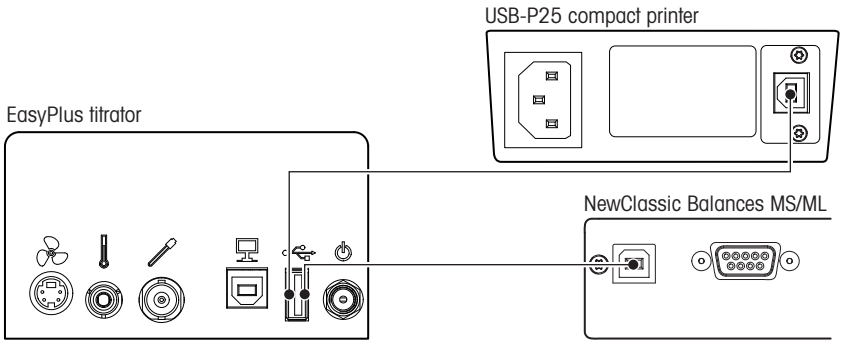
4.3 Installing printer and balance

Printers and balances can be connected to the USB interface on the back side of the titrator. Printers and balances are recognized automatically when connecting. They can immediately be used by the instrument without any special settings.

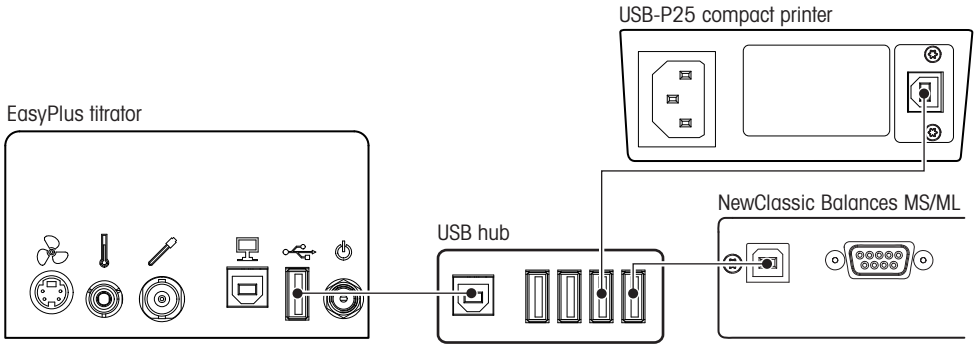
Supported devices

Manufacturer	Type	Model
METTLER TOLEDO	Balance	MS/ML (NewClassic)
METTLER TOLEDO	Printer	USB-P25

A standard USB-hub can be used if more than one device is to be connected to the USB port of the titrator.



Connecting printer or balance

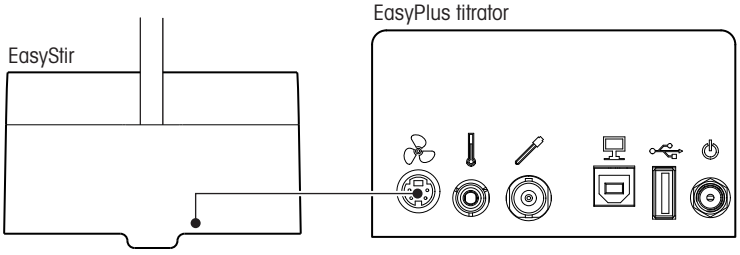


Connecting printer and balance, using a hub

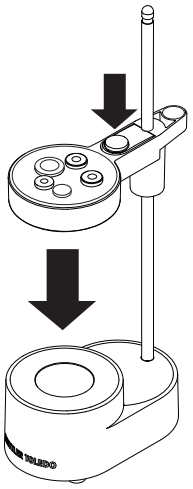
4.4 Installing EasyStir

This stirrer is powered by the instrument and will be automatically switched on/off according to the settings.

1 Connect EasyStir to the instrument stirrer socket, observing the arrow on the connector.

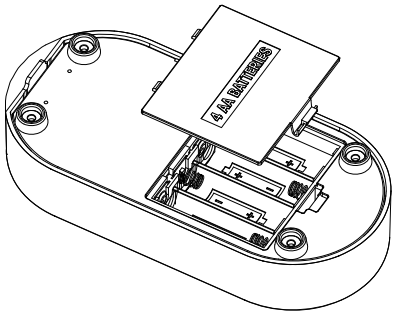


2 Push the blue release button to install the titration head on stirrer rod.



4.5 Installing EasyPump

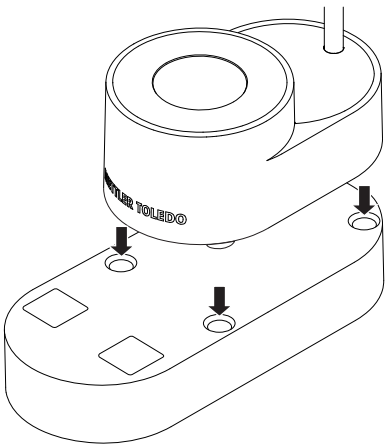
1 Remove the battery cover on the bottom of EasyPump.



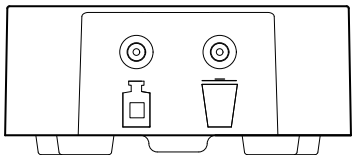
2 Insert four AA/LR6 batteries. Be sure to insert the negative (–) end first when inserting new batteries, and remove the positive (+) end first when replacing the batteries.

3 Replace the battery cover.

4 Place EasyStir on EasyPump. The four rubber feets of EasyStir will fit in the notches of EasyPump.



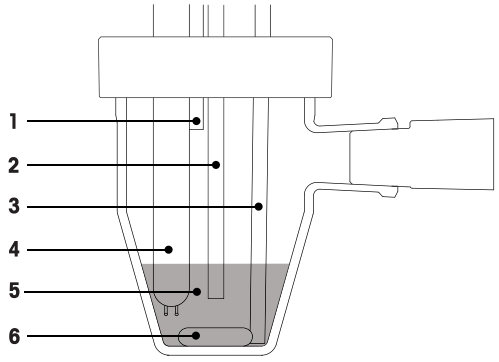
5 Fasten the silicon tubes to the pump connections at the backside of the pump.



6 Fasten the other ends of the tubes with the drying tubes on the solvent and waste bottles, according to the icons at the backside of the pump.

4.6 Setting up KF vessel

Check the listed components for correct positions in the titration vessel.



1	Tube solvent	**2**	Tube titration
3	Tube waste	**4**	Measuring sensor
5	Solvent level	**6**	Magnetic stirrer bar

4.7 Filling and emptying titration vessel

Filling the vessel with solvent

- ▶ Make sure that the titration vessel is empty. If necessary, empty the titration vessel.
- ▶ Check tube positions in the titration vessel.
- – Press the left button of EasyPump to pump approx. 20 mL of KF solvent into the titration vessel.

Emptying the vessel

- ▶ Check tube positions in the titration vessel.

1 Push the waste tube (3) fully down until it touches the vessel base.

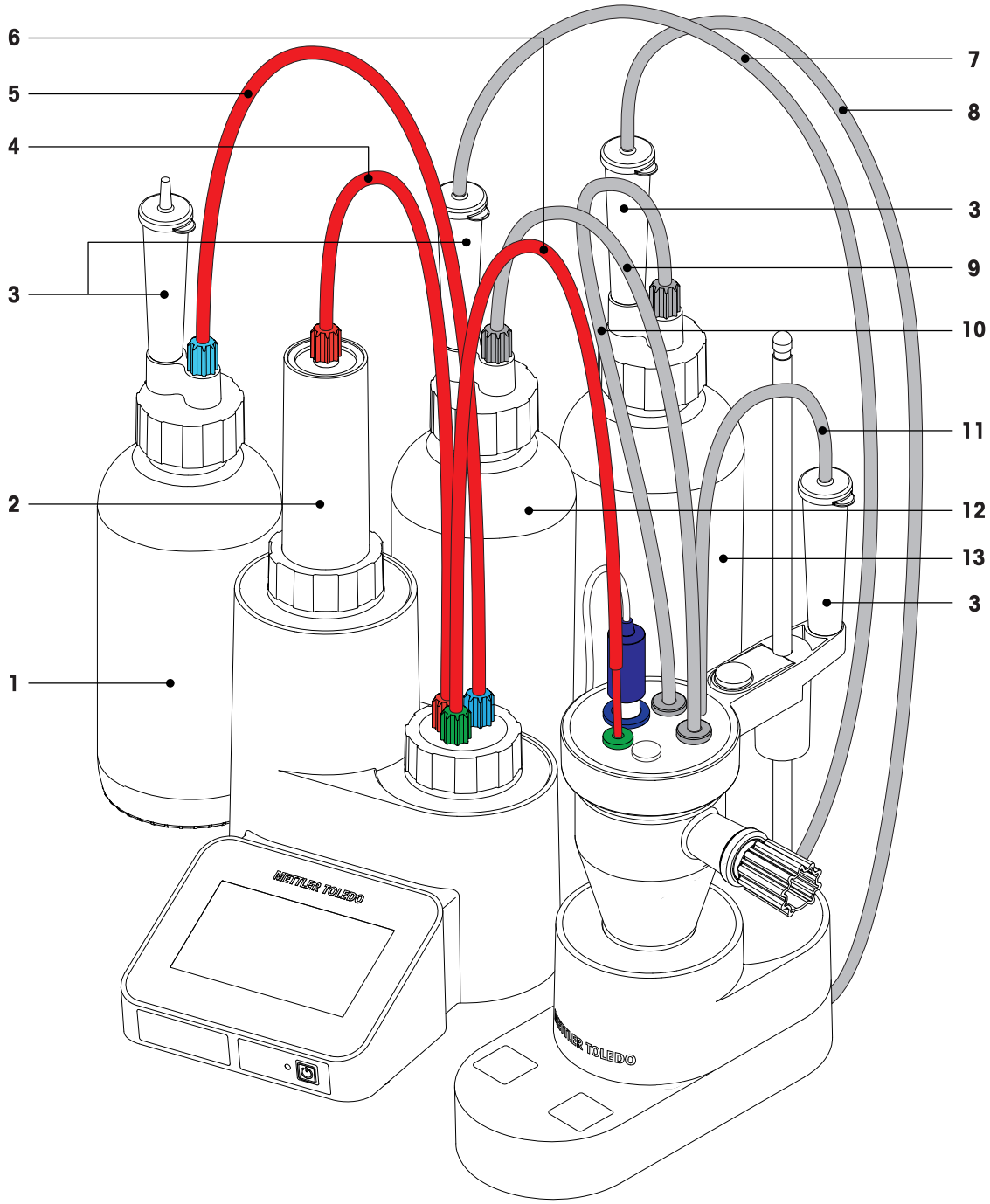
2 Press the right button of EasyPump until the titration vessel is empty.

3 Pull the waste tube up, so that it is not inhibiting the action of the stirring bar.

Also see

- Setting up KF vessel (page 17)

4.8 Tube connections



1	Titrant bottle	**2**	Burette
3	Drying tube	**4**	Tube burette-valve
5	Tube titrant	**6**	Tube titration
7	Silicone tube waste bottle	**8**	Silicon tube solvent bottle
9	Tube waste	**10**	Tube solvent
11	Tube cell-drying tube	**12**	Waste bottle
13	Solvent bottle		

5 Setup and Tools

Navigation: **Setup & Tools**

Select this menu item on the home screen to make changes to the system settings and to perform diagnostics.

5.1 Settings

Navigation: **Setup & Tools** > **Settings**

Enter or display general system settings on this screen like **Date/Time** and **SNR instrument**.

5.2 Languages

Navigation: **Setup & Tools** > **Language**

Define the user interface language. If the desired language is not installed, activate an additional user interface language by entering an activation key.

To obtain an activation key, please visit our support site at:

www.mt.com/easyplustitration

5.3 Diagnostics

Navigation: **Setup & Tools** > **Diagnostics**

Perform diagnostics for the peripheral devices and the printer.

Available functions

Peripheral check

A connection test with the available peripheral devices is performed.

Printer check

A test printout is generated on the connected printer.

5.4 Toolbox

Navigation: **Setup & Tools** > **Toolbox**

This screen contains different tools for maintaining the firmware and the option to restart the installation tutorial.

Available functions

Factory reset

This function will reset all data and settings of the instrument.

FW Update

This function will update the firmware of the instrument. The following firmware can be updated:

- **FW instrument**: This is the actual application firmware.
- **FW mainboard**: This is the firmware of the micro-controller.

EasySetup Tutorial

The tutorial will show you how to install the titrator and guide you through a first analysis.

Adjust screen

This function will start the touch screen adjustment.

Adjustment of the touch screen is necessary when your touch screen responds inaccurately e.g. after a firmware update was performed.

6 Home Screen Functions

6.1 Titration

Titration

Select this menu item to define titration parameters and to start a titration.

6.1.1 Setting up method

1 Tap [**Titration**] to open the titration parameters.

2 On the parameter screens, check and define all the parameters.

⇨ Tap [▶] to directly start the analysis.

Tap the help icon to change to help mode. Then tap any of the parameters to get a specific help description. To exit the help mode, tap the help icon again.

If a printer is connected, this icon is displayed on the parameter screen. Tap the icon to print the parameters.

Important method parameters

Parameters	Description	Values
Control	**Normal** Select this option to achieve a high accuracy with an average analysis duration. **Fast** Select this option if your analysis requires a high titrant consumption. This will set the priority on the analysis duration and may lead to a lower accuracy. **Cautious** Select this option to set the priority on a high accuracy. The analysis duration may be prolonged with this setting. **User defined** Definition of a specific user defined control parameter set. An additional parameter set (**Control settings**) is displayed.	**Normal** | **Fast** | **Cautious** | **User defined**
Multiple determination	This option will calculate the mean value and standard deviation (relative and absolute) over the samples. Maximum number of samples: 5.	Yes | No
Report	**None** No Report is printed at the end of the analysis. **Short** A summary is printed at the end of the analysis. **Long** A report is printed at the end of the analysis.	**None** | **Short** | **Long**

6.1.2 Performing an analysis

Attention

- Before performing an analysis, check the tube connections of the burette.
- Make sure that the titration tube is directed into a vessel which is a multiple of the volume of the burette.

- Rinse the burette and tubes with the function **Burette**. Perform this function once a day or before the first analysis is run.
- Empty titration vessel. Then refill vessel with solvent. See Filling and emptying titration vessel (page 17).

Single determination

▶ All parameters for the method are checked and defined.

1 On the home screen, tap and hold [**Titration**] to start the titration. The titrator first always performs a pretitration as a basis for a water-free solvent. **Waiting** and the current drift and potential values are shown on the screen.

⇨ As soon as the continually determined drift value falls below the defined value in **Max. start drift**, **Ready** is shown on the screen.

2 Tap [▶] and follow the instructions on the screen. With the progress of the titration, the displayed curve is automatically rescaled so that an entire titration is visible.

⇨ The result screen is displayed.

Multiple determination

▶ All parameters for the method are checked and defined. **Multiple determination** is selected.

1 On the home screen, tap and hold [**Titration**] to start the titration. The titrator first always performs a pretitration as a basis for a water-free solvent. **Waiting** and the current drift and potential values are shown on the screen.

⇨ As soon as the continually determined drift value falls below the defined value in **Max. start drift**, **Ready** is shown on the screen.

2 Tap [▶] and follow the instructions on the screen. With the progress of the titration, the displayed curve is automatically rescaled so that an entire titration is visible.

⇨ When the first analysis is finished, the result screen is displayed with the two options **Last sample**|**Overview**. The titrator continues titrating to keep the solvent water-free. **Waiting** and the current drift and potential values are shown on the screen.

⇨ As soon as the continually determined drift value falls below the defined value, **Ready** is shown on the screen.

3 Tap [▶] to start the next analysis and follow the instructions on the screen.

⇨ Repeat these steps for a maximum of 5 samples.

4 To end the series before the maximum of 5 samples is reached, tap [⏹]

⇨ The result screen is displayed with the options **Last sample**|**Overview**. You find the results of the last sample and the overview which includes statistics data for the current series of samples.

Note

- Sample data of analysis stopped with [⏹] or by an error will be excluded from the statistics.

6.2 Burette

Burette

Select this menu item to rinse the burette or to dispense a defined quantity of titrant.

6.3 Stirrer

Stirrer

Select this menu item to switch the stirrer on or off at a definable stirring speed.

6.4 Titrant

Titrant

Select this menu item to define the titrant properties and to start a titrant determination. For an accurate analysis, it is recommended to determine the concentration of the titrant by performing a titrant determination.

In the two tabs **Properties|Determination** you will find the titrant properties and the parameters to execute a titrant determination. For a titrant determination, similar parameters are used as for a titration.

A titrant determination should be performed as multiple determination.

Tap the help icon to change to help mode. Then tap any of the parameters to get a specific help description. To exit the help mode, tap the help icon again.

If a printer is connected, this icon is displayed on the parameter screen. Tap the icon to print the parameters.

Important parameters

Parameters	Description	Values
Titrant	Choose a predefined name from the list or choose **User defined** to enter a name.	Predefined names I **User defined**
Name	Enter a name that uniquely identifies the used titrant. Displayed if **Titrant** = **User defined**.	-
Actual concentration	Displays the concentration of the Karl Fischer titrant in [mg/mL]. The concentration can either be entered manually, or can be determined automatically (**Titrant determination**). For an automated determination, tap [**Properties|Determination**] to change to the method parameters.	0.0010 ... 100.0000
Determination mode	Indicates if the the concentration has been entered manually or has been determined automatically.	**Automatic** I **Manual input**

Also see

- Setting up method (page 21)

6.5 Sensor

Sensor

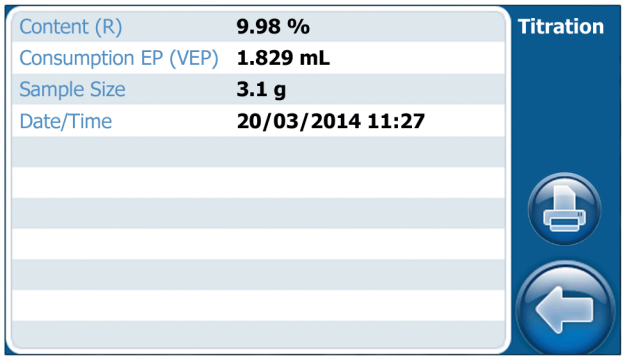
Select this menu item to display the sensor properties.

7 Results

Results

Select this menu item to display the results of a determination. The result of the last sample or of the last multiple determination is displayed.

Results of a single determination

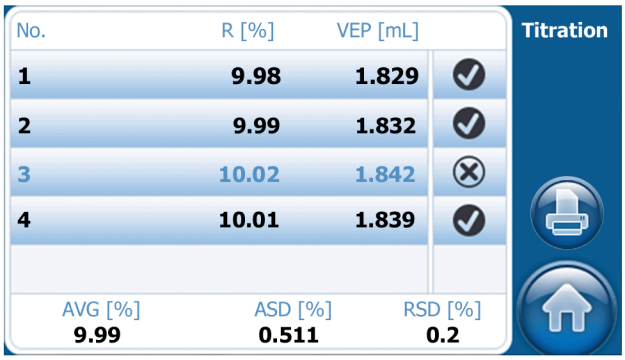


All available results for the sample are shown.

Tap this icon to print the shown results.

Tap this menu item to return to the home screen.

Results of a multiple determination



The results of the individual samples are displayed as well as the statistics (Average, absolute and relative standard deviation). By tapping on the individual sample, all available results for the respective sample are shown.

Tap this icon to exclude a result from the statistics.

Tap this icon to include a result, which was previously excluded.

Results of stopped or erroneous titrations are excluded automatically.

Tap this icon to print the shown results.

Tap this menu item to return to the home screen.

8 Maintenance

Attention

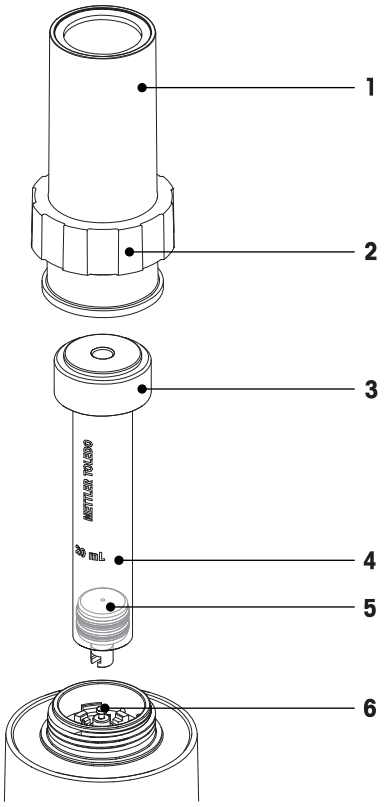
Before maintaining any parts of the titrator, the following safety precaution must be observed.

- Rinse and empty the burette, valve and tubes.
- Switch off the instrument and unplug the AC adapter from the instrument.
- A suitable eye protection such as goggles should be worn.
- Use appropriate gloves when handling chemicals or hazardous substances.

8.1 Maintaining and changing the burette

Attention

- Do not pull the piston out of the glass cylinder, reinserting the piston will damage the O-rings!



1 Burette cover
2 Cap nut
3 Burette cap
4 Glass cylinder
5 Piston
6 Piston rod

Dissassembling the burette cylinder

▶ The burette, valve and tubes are rinsed and emptied.

▶ The AC adapter is unplugged from the instrument.

1 Unscrew the connection tube on top of the burette cap and clean the connections with a tissue.

2 Unscrew the blue cap nut.

3 Lift off the burette cover including cap nut.

4 Carefully lift the glass cylinder, until you are able to slide off the burette from the piston rod.

⇨ The burette can now be exchanged or maintained.

Assembling the burette cylinder

– Assemble the burette in reverse order.

8.2 Cleaning the burette parts

Depending on the titrant, you should clean the burette cylinder, piston, valve and tubing relatively often.

1 Depending on the contamination caused by the titrant, rinse cylinder, valve and tubes with acids or deionized H_2O then with ethanol.

2 Dry the parts with oil-free compressed air.

Note

- Never place O-rings in organic solvents.
- Never attempt to remove any crystals in the cylinder by scratching with a hard object. Pipe cleaners or Q tips™ are more suitable.
- Never put the parts in a drying oven with a temperature higher than 40 °C.
- Replace the burette if the piston leaks or is badly scored at the edge. Pay special attention to crystal formation between the seals of the piston if you work with certain solutions.

8.3 Maintaining the valve

Cycle counter

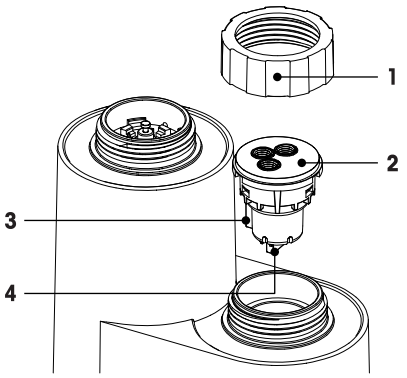
The instrument is permanently counting the cycles of the valve. When the life time of 5000 cycles is reached, a message box will open. At this time it is recommended to exchange the valve.

– Tap [**Reset cycles**] to reset the valve cycles to 0 (when you have exchanged the valve).
- or -
Tap [**Continue**] to continue working with the valve.

The counter can be viewed at any time in:

Setup & Tools > **Settings** > **No. cycles valve**.

Dissassembling the valve



1 Cap nut
2 Valve
3 Guide
4 Driver bar

▶ The burette, valve and tubes are rinsed and emptied.

▶ The AC adapter is unplugged from the instrument.

1 Unscrew the connection tubes on top of the valve and clean the connections with a tissue.

2 Unscrew the cap nut, holding the valve.

3 Remove the valve.

⇨ The valve can now be exchanged or maintained.

Assembling the valve

1 Insert the valve, observing the correct positions of the driver bar and the guide.

2 Fasten the cap nut.

8.4 Transporting the titrator

Note the following instructions when transporting the titrator to a new location.

▶ The burette, valve and tubes are rinsed and emptied.

▶ The AC adapter is unplugged from the instrument.

1 Remove all tube connections from burette and valve.

2 Remove all cable connections from the instrument.

3 Remove the burette as described above.

⇨ The instrument is ready to be transported.

Procedure if the burette and valve cannot be emptied

Attention

- Do not remove any tubes attached to burette or valve.

1 Remove all cable connections from the instrument.

2 Carefully remove the burette as described above, without removing the tube.

3 Carefully remove the valve as described above, without removing any tubes.

4 Place burette and valve in a suitable container for storage or further handling.

⇨ The instrument is ready to be transported.

8.5 Cleaning of the housing

The housing is made of Polypropylene (PP GF30). This material is sensitive to some acids and organic solvents, such as toluene, xylene and methyl ethyl ketone (MEK).

– Clean the housing of the instrument using a cloth moistened with water and a mild detergent.

Attention

- Ensure that no liquid enters the interior of the instrument.
- Any spills should be wiped off immediately.

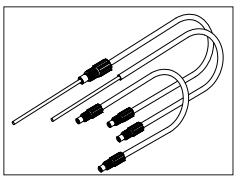
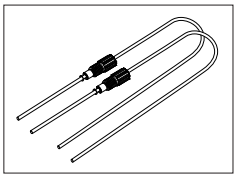
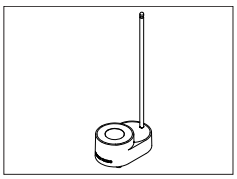
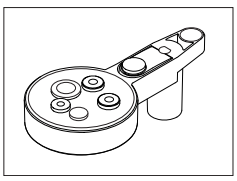
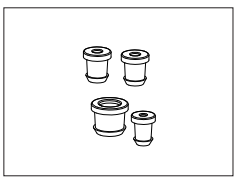
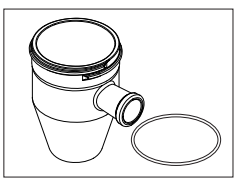
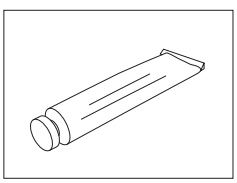
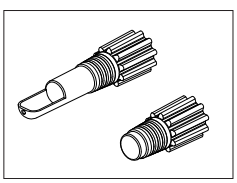
8.6 Disposal

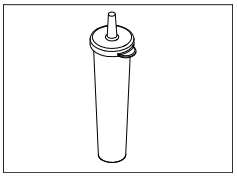
In conformance with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.

Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. If you have any questions, please contact the responsible authority or the distributor from which you purchased this device. Should this device be passed on to other parties (for private or professional use), the content of this regulation must also be related.

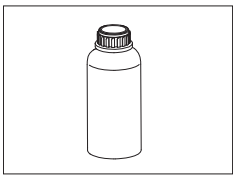
Thank you for your contribution to environmental protection.

9 Accessories

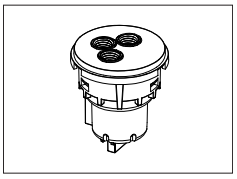
	Description	Order number
	Tubing set instrument	**30065464**
	Tubing set EasyPump	**30065465**
	EasyStir KF	**30065468**
	Titration head KF	**30041103**
	Insert set titration head KF	**30057636**
	KF titration vessel Set Incl. O-ring for KF titration vessel	**30065471**
	Silicone grease	**71300**
	Weighing boat and stopper set	**30065466**



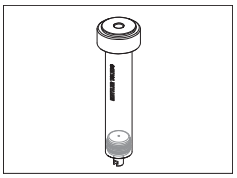
EasyPlus drying tube **30044701**



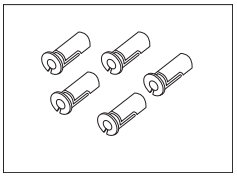
Molecular sieve
250 g **71478**



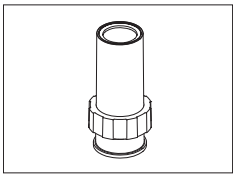
Valve **30042860**



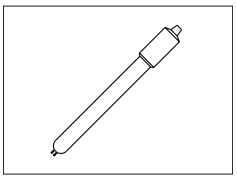
Burette 10 mL **30043900**



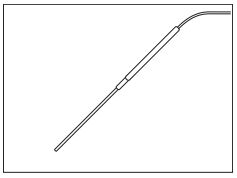
Siphon tips (5 pcs.) **23240**



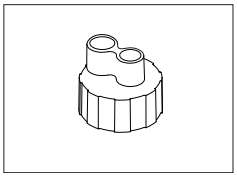
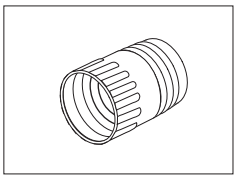
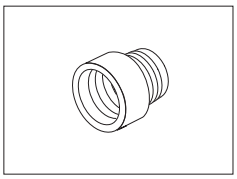
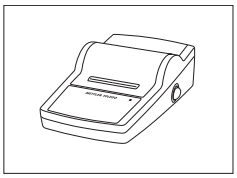
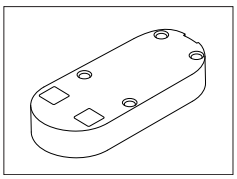
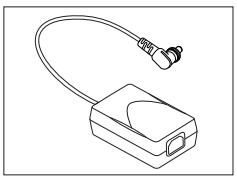
Burette cover set **30057633**



EM43-BNC: Sensor KF/Redox Ipol **30043105**



Temperature probe NTC 30K **51300164**

	Bottle Head incl. flat seal	**30060023**
	Adapter for bottles made by Merck, Germany Fisher, USA	 **23774** **23787**
	Bottle adaptor China 2 incl. flat seal Bottle adaptor China incl. flat seal Bottle adaptor India incl. flat seal	**30079456** **30060026** **30060024**
	USB-P25 compact printer (including USB-cable)	**USB-P25**
	EasyPump	**30064218**
	AC/DC power adapter	**51105795**

10 Technical Data

EasyPlus Titration

Interfaces	USB A	USB full / low speed
	USB B	USB full / low speed
Stirrer output	Voltage	24 V AC
	Socket	4-pin Mini-DIN
Polarized Sensor Ipol	Current source	0 - 50 µA
	Measuring range	± 2000 mV
	Socket	BNC
Touch screen	Display	4.3 inch color, 480 x 272 pixel
	Input Technology	Full-coverage touch screen
Ambient conditions	Ambient temperature	5 °C - 40 °C
	Relative humidity	Max 80% (non condensing) at 31 °C, linear descending to 50% at 40 °C
	Overvoltage category	Class II
	Pollution degree	2
	Range of application	For indoor use only
	Maximum operating altitude	Up to 2000 m
Dimensions	Width	170 mm
	Depth	220 mm
	Height	350 mm
Weight	Instrument	1850 g
	Stirrer	800 g
Power rating instrument	Input voltage	24 V ⎓
	Input current	1.25 A
Power rating AC adapter	Line voltage	100 - 240 V ~ ±10 %
	Input frequency	50/60 Hz
	Input current	0.8 A
	Output voltage	24 V ⎓
	Output current	1.25 A
Materials	Housing	PP GF30
	Metal parts	Stainless steel
	Touch screen cover	Polyester

EasyStir KF

Stirrer motor	Motor type	Stepper motor
	Voltage	24 V AC
	Cable connection	4-pin Mini-DIN
Materials	Housing	PP GF30
	Chassis	Stainless steel

EasyPump

Pump drive	Motor type	DC
	Voltage	6 V DC
	Batteries	4 x AA/LR6 1.5 V or NiMH 1.2 V rechargeable
Materials	Housing	PP GF30
	Chassis	Stainless steel

To protect your product's future:
METTLER TOLEDO Service assures the quality, measuring accuracy and preservation of value of this product for years to come.

Please request full details about our attractive terms of service.

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