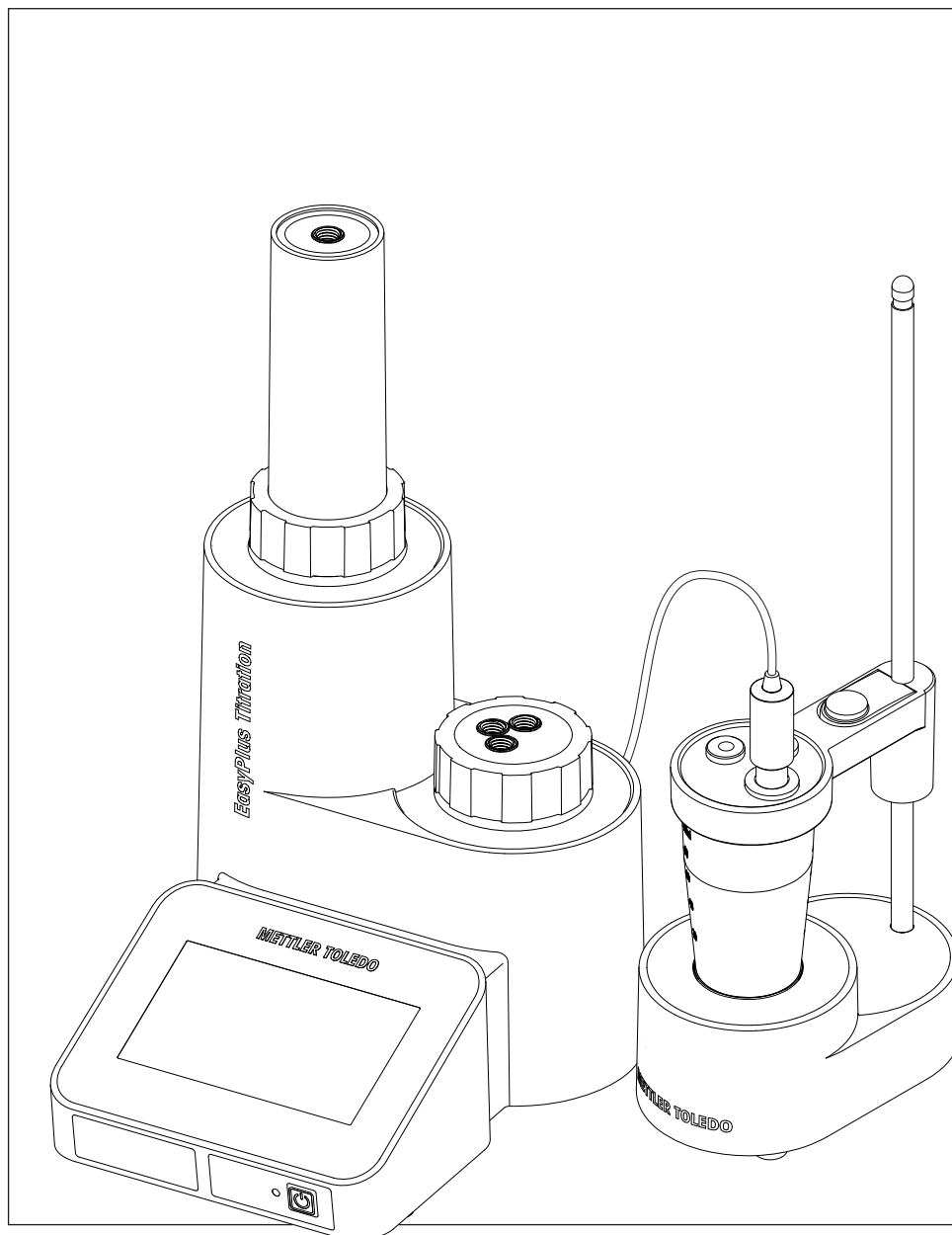


EasyPlus™ Titration

Easy pH / Easy Ox / Easy Cl / Easy Pro



METTLER TOLEDO

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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.

Titration 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 (iTitrator™ 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 represents 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 that 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 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 as well as knowledge and experience working with application-specific reagents, which may be toxic or hazardous.

The manufacturer shall not be held liable for any damage resulting from incorrect usage divergent to the operating instructions. Furthermore, the manufacturer's technical specifications and limits must be adhered to at all times and in no way exceeded.

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 gases. Avoid powerful vibrations, excessive temperature fluctuations and temperatures below 5 °C and above 40 °C.

Protective Clothing

It is advisable to wear protective clothing in the laboratory when working with hazardous or toxic substances.



A lab coat should be worn.



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

Use only 3-pin grounded electrical outlet and extension cables to connect the instrument.

- 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, avoid 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 must 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

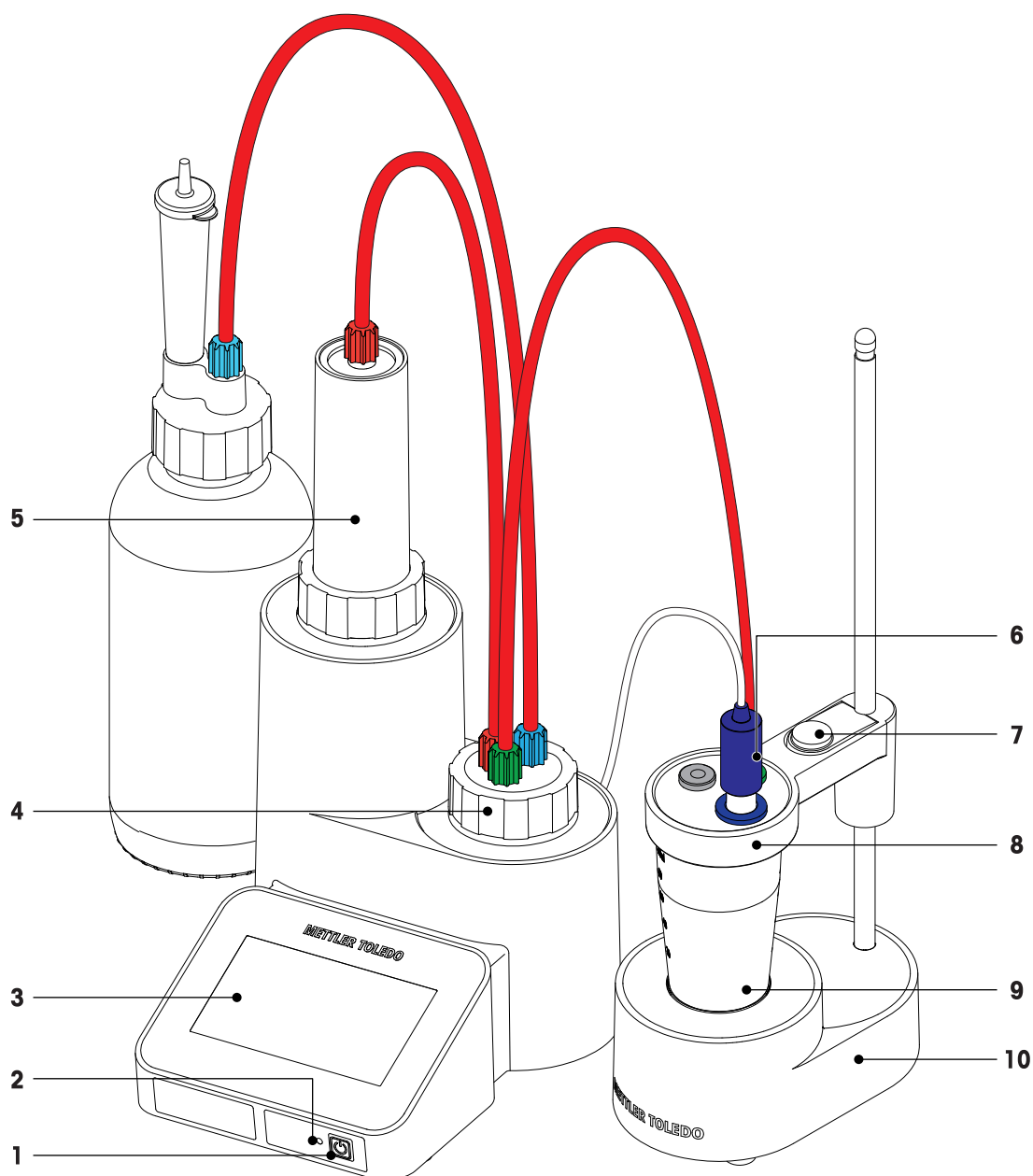
Chemicals

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.
-

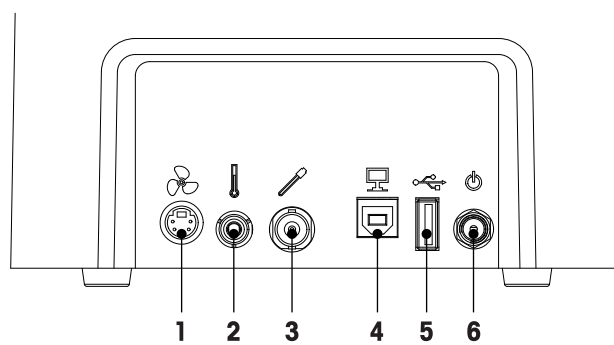
3 Design and Function

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 GT
9	Titration beaker	10	Stirrer (EasyStir GT)

Rear view

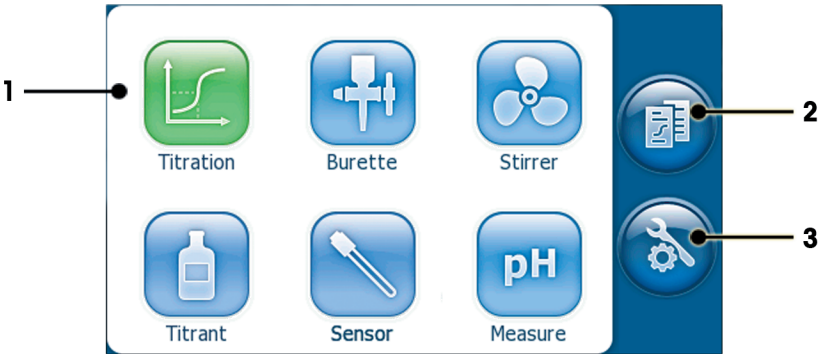


1	Socket for stirrer (Mini-DIN)	2	Socket for temperature sensor (RCA - Cinch)
3	Socket for measuring sensor (BNC)	4	USB B interface for PC connection (EasyDirect PC Software)
5	USB A interface for printer and balance	6	DC socket for power supply

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.



Tap this icon on a parameter screen to change the parameter set. Parameter set with number two is active in this example. ¹⁾



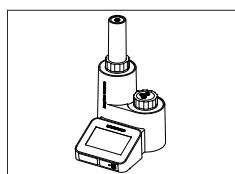
Indicates which analysis will be started when you tap and hold an app (LongClick™). Parameter set with number two is active in this example. ¹⁾

1) For instrument type **Easy Pro** only.

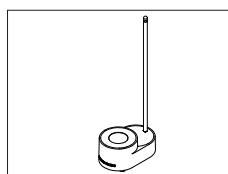
4 Putting into Operation

4.1 Scope of Delivery

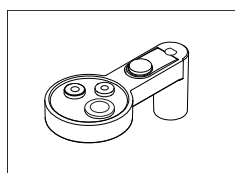
Check the completeness of the delivery. The following accessories are part of the standard equipment of your new instrument:



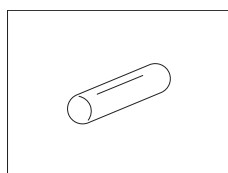
EasyPlus titrator incl. 20 mL burette



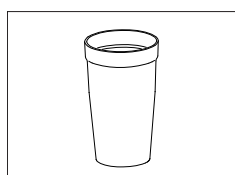
EasyStir GT



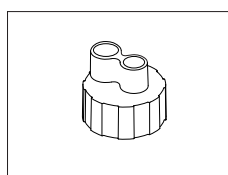
Titration head GT



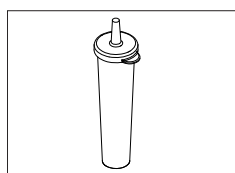
Magnetic stirrer bar



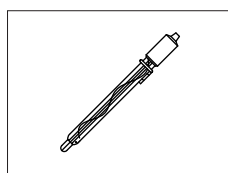
Beaker PP (100 mL, 10 pcs.)



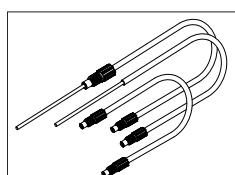
Bottle head incl. flat seal



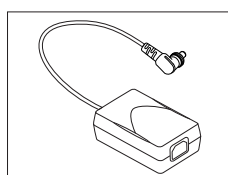
Drying tube



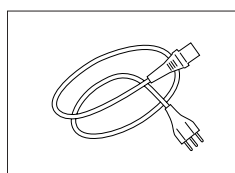
Measuring sensor



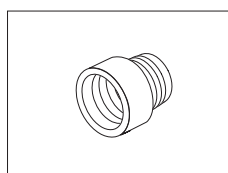
Tubing set instrument



AC/DC power adapter



Country specific power cable



Bottle adapter incl. flat seal
(For China only)

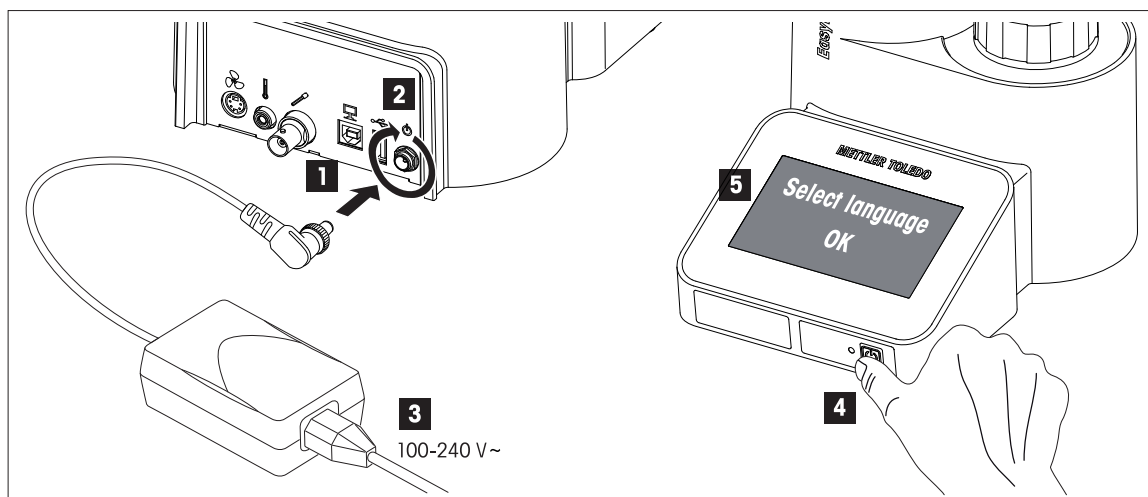
4.2 Installing power supply

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



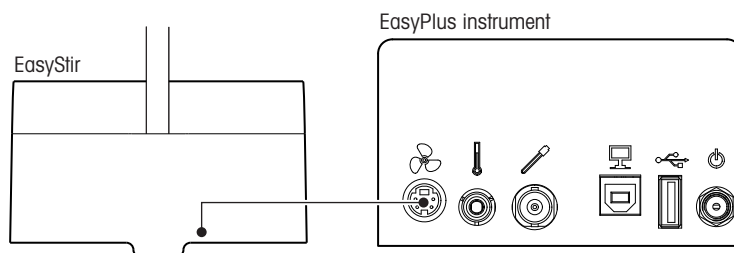
- 1 Connect the plug of the AC adapter with the DC socket of the instrument.
- 2 Secure the plug by firmly tightening the knurled nut.
- 3 Connect the 3-pin grounded power cable to the AC adapter and then connect the power cable to electrical outlet.
- 4 Push the **On/Off** button to switch on the instrument. 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]**.

Continue with chapter Installing EasyStir

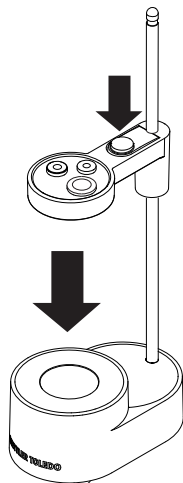
4.3 Installing EasyStir

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/analyzer head on stirrer rod.



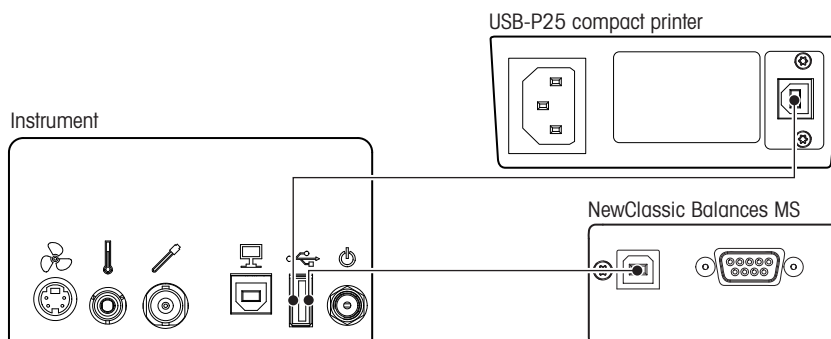
4.4 Installing printer and balance

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.

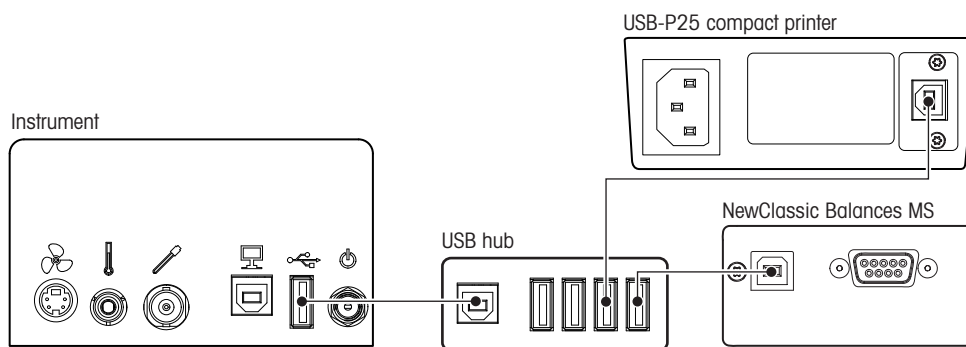
Supported devices

Manufacturer	Type	Model
METTLER TOLEDO	Balance	MS (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.

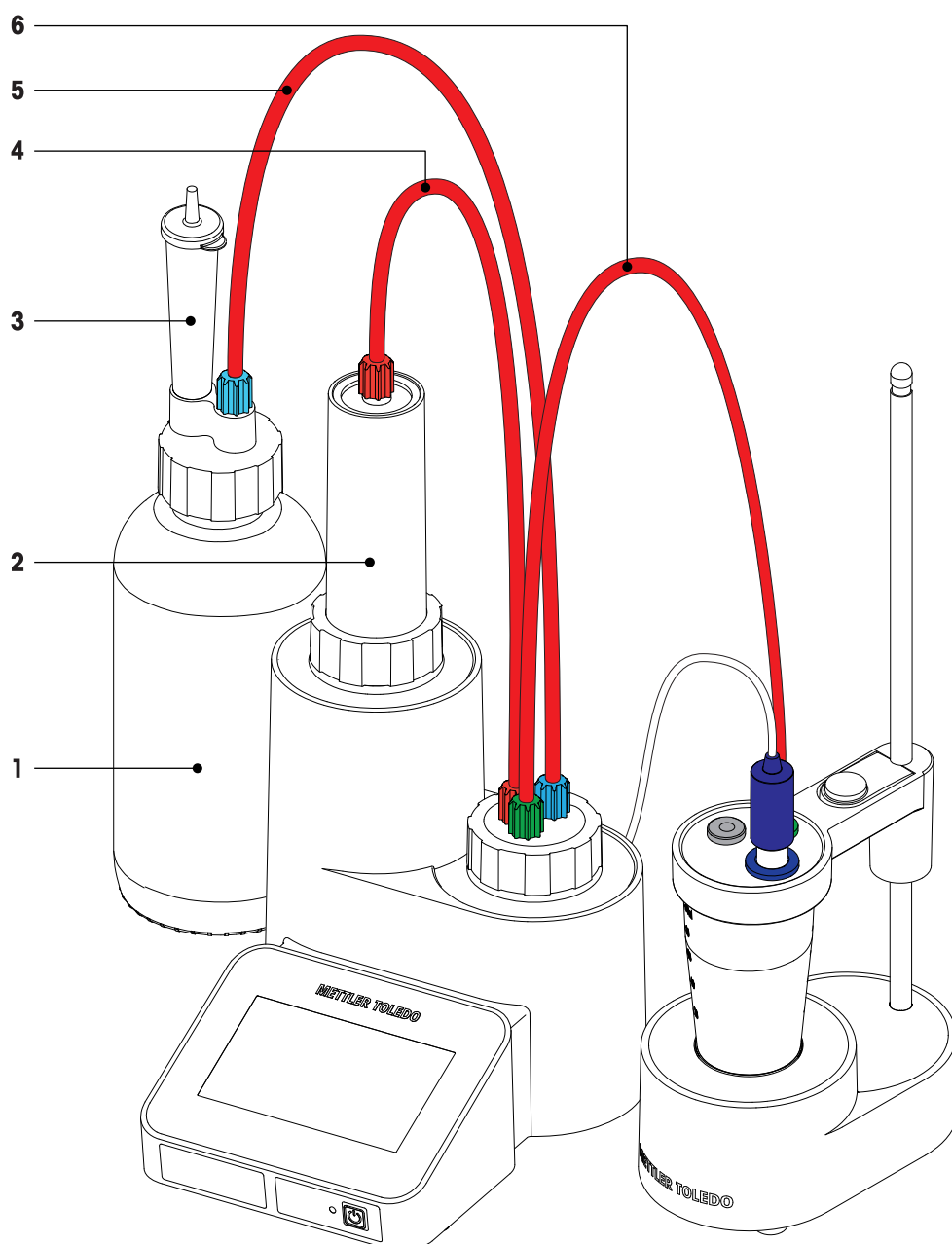


Connecting printer or balance



Connecting printer and balance, using a hub

4.5 Overview tube connections



1	Titrant bottle	2	Burette
3	Drying tube	4	Tube burette-valve
5	Tube titrant	6	Tube titration

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**, **Blank value**, **No. cycles valve** 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 VPac

Mettler-Toledo offers an unique performance verification service* with the ready to use traceable VPac™ standard kits. It is a simple and convenient method to get an independent, reliable verification of your system's performance. It is a standard operating procedure which covers the whole system while minimizing operator handling errors. This enables the on-line support team to help solve your titration problems.

► www.mt.com/easyplustitration-vpac

A performance test is recommended in the following situations:

- You are setting up an instrument.
- You are changing components of the titration system like the burette.
- You are switching the titrant or electrode.
- Periodic check every 6 months.

(*) The systems performance is verified according to the general system suitability tests requirements defined by Mettler-Toledo.

This service is provided for the EasyPlus™ Titrator types: Easy CI, Easy pH, Easy Pro

Get the ready to use standard solutions appropriate for your type of titration and simply run three analyses. The preprogrammed method automatically calculates the results which can be submitted on the Mettler-Toledo webpage with your EasyPlus™ Titrator registration to receive an unbiased performance verification statement rating your titrator's accuracy.



Navigation: **Setup & Tools > VPac**

Execute a performance verification for the instrument including the titrant and the sensor, using a VPac standard kit.

This function is available for the following titration types:

- Acid/Base aqueous: **Easy pH, Easy Pro**
- Precipitation: **Easy CI, Easy Pro**






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.

Performance verification

- ▶ It is recommended to perform a titrant determination, before a performance verification using a VPac is executed.
- ▶ Clean a stirrer bar which will be used for the procedure.
- 1 In **Standard kit**, select the corresponding VPac to be used for the performance verification.
- 2 Insert a stirrer bar into the first sample vessel (A) from the VPac and attach it to the titration head.
- 3 Tap  to start the first determination.
 - ⇒ When the first determination is finished, the result screen is displayed.
- 4 Release the sample vessel and remove the stirrer bar from the sample vessel.
- 5 Insert the cleaned stirrer bar into the second sample vessel (B) from the VPac and attach it to the titration head.
- 6 Tap  to start the second determination.
 - ⇒ When the second determination is finished, the result screen is displayed.
- 7 Release the sample vessel and remove the stirrer bar from the sample vessel.
- 8 Insert the cleaned stirrer bar into the third sample vessel (C) from the VPac and attach it to the titration head.
- 9 Tap  to start the third determination.
 - ⇒ When the third determination is finished, the result screen is displayed. 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.

The Performance Verification webpage

Please follow this link:

▶ www.mt.com/easyplustitration-vpac

- ▶ Use a web browser and navigate to link provided to enter the results of the three VPac standard kit analyses you ran on your EasyPlus™ Titrator. Click [**Run VPac Verification**].
- ▶ Please log in with your existing profile or register using your instrument's serial number.
- ▶ On the page [**Run Performance Verification**] proceed as follows:
 - 1 Enter the kit number stated on the VPac standard kit vessels or on the smaller side of the VPac standard kit box. It has the format #####-####-####. Use TAB key or click in the next field. The detail information about your kit will be shown on the page.
 - 2 Enter the three results shown in the mmol column of your titrator result screen. You may submit the form with two results only, but you will not be able to receive a certificate with statistical information.
 - 3 Enter the operator name and set the date you had performed the analyses. Default is the current date.
 - 4 To customize the certificate showing the company information and instrument serial number enter your details or unselect the respective check box.
The company information from your profile is filled in by default, the profile is not changed by editing it on the performance verification form.
 - 5 Click [**Submit**] to submit the results. You will be directed to a new page from where you can download a customized PDF document.

There are three possible outcomes

Conformity certificate	Three results have been submitted and are within the limits set.
Conformity confirmation	Results are within limits, but only two results were submitted or the VPac™ standard kit already expired.
Non-conformity declaration	The results are outside the limits. We help you to solve the problem.

5.4 Diagnostics



Navigation: **Setup & Tools > Diagnostics**

Performs diagnostics for the peripheral devices and the printer.

Available functions



Peripheral check

A connection test of the available peripheral devices is performed.



Printer check

A test printout is generated on the connected printer.



Sensor check

The sensor check will measure the buffer and compare the measured value with the target value entered by the user. The limits are fixed internally.

This option is only available for pH sensors with the following titrator types: **Easy pH, Easy Pro**

5.5 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
Titration type	<p>The available options are depending on the application and instrument model.</p> <p>Direct Determination of the concentration of the sample.</p> <p>Blank determination The blank determination will determine the consumption in [mmol] when titrating the solvent.</p> <p>Blank compensated This titration type will take the stored blank value into account, when calculating the result of an analysis.</p> <p>Back In a back titration, the concentration of an analyte is determined by reacting it with a known amount of excess reagent. The excess reagent is then titrated with a titrant. The concentration of the analyte in the original solution is then related to the amount of titrant consumed. The amount of excess reagent titrated with the titrant is entered as back value. In Back value, enter the amount of excess reagent which is titrated with the titrant.</p>	Direct Blank determination Blank compensated Back
EP/EQP	<p>EP The titrant is added until the endpoint (EP) is found.</p> <p>EQP The titrant is added until the equivalence point (EQP) is found.</p>	EP EQP

Control	<p>Normal Select this option to achieve a high accuracy with an average analysis duration.</p> <p>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.</p> <p>Cautious Select this option to set the priority on a high accuracy. The analysis duration may be prolonged with this setting.</p> <p>Very cautious Select this option if you expect a steep titration curve, for example when titrating strong acid / strong base.</p> <p>User defined Definition of a specific user defined control parameter set. An additional parameter set (Control settings) is displayed.</p>	Normal Fast Cautious Very cautious User defined
Multiple determination	This option will calculate the mean value and standard deviation (relative and absolute) in the samples. Maximum number of samples: 5.	Yes No
Report	<p>None No Report is printed at the end of the analysis.</p> <p>Short A summary is printed at the end of the analysis.</p> <p>Long A full report is printed at the end of the analysis.</p>	None Short Long

6.1.2 Performing an analysis

Attention

- Before performing an analysis, check the tube connections.
- 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.

Single determination

- The sample is prepared and added to the titration beaker.
- All parameters for the method are checked and defined.
 - 1 Place the titration beaker on the stirrer.
 - 2 On the home screen, tap and hold [**Titration**] to start the titration.
 - ⇒ You will be prompted, if any parameters are required by the analysis.
 - 3 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.

Note

- Before a second fill of the burette, a message is displayed giving the option to refill.
- A maximum of 10 fills of the burette is possible. After 10 fills the titration will be stopped automatically. The volume dosed during predisense is not included here.

Multiple determination

- All parameters for the method are checked and defined. **Multiple determination** is selected.
 - 1 Prepare the first sample and place the titration beaker on the stirrer.
 - 2 On the home screen, tap and hold [**Titration**] to start the titration.

- ⇒ You will be prompted, if any parameters are required by the analysis.
- 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 sampleOverview**.
 - Prepare the next sample and place the titration beaker on the stirrer.
 - Tap [🟢] to start the next analysis and follow the instructions on the screen.

⇒ Repeat these steps for a maximum of 5 samples.
 - To end the series before the maximum of 5 samples is reached, tap [👤]
- ⇒ The result screen is displayed with the options **Last sampleOverview**. The results of the last sample and the overview including the statistical data for the sample series are displayed.

Note

- Sample data of analysis stopped with [🔴] or by an error will automatically 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. Change the burette size according to the actual installed burette.

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 **PropertiesDetermination** 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 User defined
Nominal concentration	Enter here the nominal concentration in [mol/L] of the titrant being used.	0.001 ... 100

Titer	The titer of a titrimetric solution is the quotient of the actual concentration (Actual concentration) and the expected concentration (Nominal concentration). Titer = Actual concentration / Nominal concentration The titer can either be entered manually or determined automatically.	0.0001 ... 10.0000
Actual concentration	The Actual concentration can either be determined automatically or for a manual entry of the titer value it will be calculated. For an automated determination, tap [Properties Determination] to change to the parameters.	0.0010 ... 100.0000
Determination mode	Indicates if the titer has been entered manually or has been determined automatically.	Automatic Manual input

See also

- Setting up method (page 19)

6.5 Sensor



Sensor

Select this menu item to define or view the sensor properties and to start a sensor calibration.

In the two tabs **Properties|Calibration** you will find the sensor properties and the parameters to execute a sensor calibration. If no temperature sensor is defined for the calibration, the system settings are taken into account for temperature compensation (**Global temperature**).

A sensor calibration is only available for pH sensors with the following titrator types: **Easy pH**, **Easy Pro**



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
Sensor	Select a sensor type according to the measurement type.	pH aqueous pH non-aqueous Redox IPol.
Unit	Select the unit to be used for the measurement. Displayed if Sensor = pH aqueous or pH non-aqueous .	mV pH
Temperature sensor	Defines if a temperature sensor is used for the temperature capture. Displayed if Sensor = pH aqueous or pH non-aqueous .	On Off
Zero point	Information on the zero point of the sensor, determined by a sensor calibration [pH]. The sensor zero point (pH value at E = 0 mV) is a calibration parameter. Displayed if Sensor = pH aqueous or pH non-aqueous .	0.00 ... 14.00
Slope	Information on the slope of the sensor, determined by a sensor calibration [mV/pH]. The slope is a calibration parameter. Displayed if Sensor = pH aqueous or pH non-aqueous .	-100.00 ... +100.00
Current	Defines the polarization current of the measuring sensor [μA]. The current may need to be changed depending on the application type. Displayed if Sensor = Redox IPol.	0.1 ... 5.0

Important parameters for sensor calibration

Parameters	Description	Values
Buffer list	Select the buffer list with which the pH sensor will be calibrated.	MT-EU MT-US GBT/T 27501 User defined
Buffer 1 / Buffer 2	<p>If Temperature sensor = Off.</p> <p>Enter the pH value for each buffer.</p> <p>If Temperature sensor = On.</p> <p>Enter the temperature specific pH values of up to 6 different temperatures for each buffer.</p>	0.01 ... 14.00

See also

- Setting up method (page 19)
- Settings (page 16)

6.6 Measure



Measure

Select this menu item to start a pH measurement.

The measurement starts after the time defined in **Prestir duration**, and ends automatically when the signal of the measuring sensor is stable. To accept the readings before the endpoint is found automatically, tap [✓].

Stability criterion: The signal of the measuring sensor input may not change by more than 0.1 mV in 6 seconds.

This option is only available for pH sensors with the following titrator types: **Easy pH, Easy Pro**



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.



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

Content (R)	9.98 %	Titration
Consumption EP (VEP)	1.829 mL	
Sample Size	3.1 g	
Date/Time	20/03/2014 11:27	
		 

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

No.	R [%]	VEP [mL]		Titration
1	9.98	1.829	✓	
2	9.99	1.832	✓	
3	10.02	1.842	✗	
4	10.01	1.839	✓	 
AVG [%]			ASD [%]	RSD [%]
9.99			0.511	0.2

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



Note

Risk of spilling harmful chemicals!

While cleaning the instrument, wear safety goggles, a lab coat and suitable gloves at any time!



Note

Before maintaining any parts of the instrument, the following safety precautions must be observed:

Rinse and empty the burette, valve and tubes using dH₂O.

Switch off the instrument and unplug the AC adapter from the instrument.

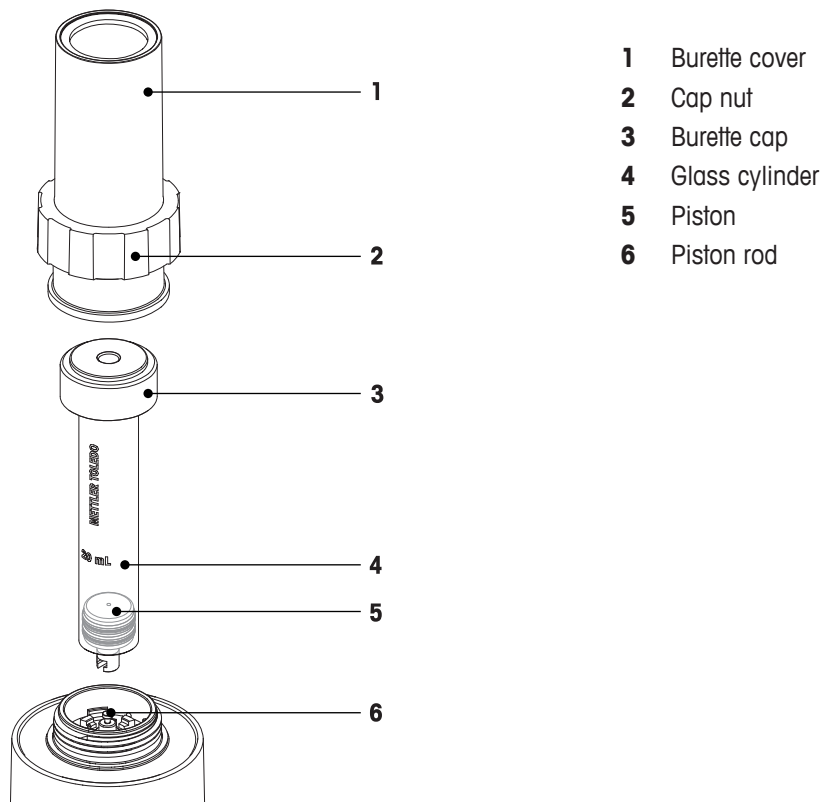
8.1 Maintaining and changing the burette



Note

Damage to the O-rings!

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



Disassembling 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 reused.

Assembling the burette cylinder

- Reassemble the burette in reverse order.

8.2 Cleaning the burette parts

Depending on the frequency of usage, you should clean the burette cylinder, piston, valve and tubing relatively often. It is important to use high quality ethanol for the cleaning procedure.

- 1 Depending on the contamination caused by the standard, rinse cylinder, valve and tubes with deionized H₂O 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

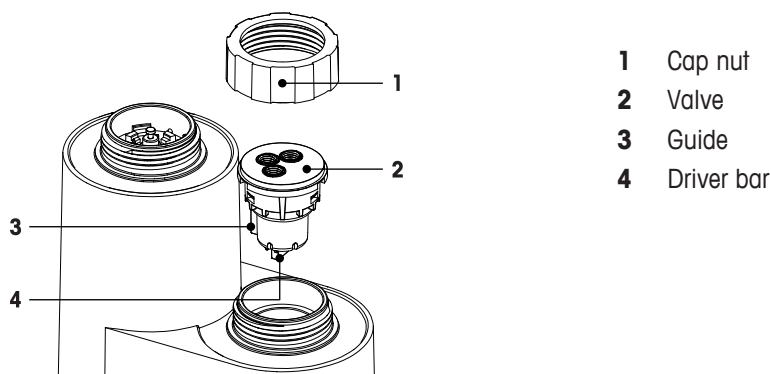
The instrument permanently counts the cycles of the valve. When the life time of 5000 cycles is reached, a message box will open. At this time it is recommended that the valve is exchanged. It is possible to reset the cycle counter manually by using the function **Reset cycles valve** in the menu **Setup & Tools**. Use this function only if the valve has been replaced before reaching 5000 cycles.

- 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.

Disassembling the valve



- The burette, valve and tubes are rinsed and emptied.
 - The AC adapter is unplugged from the instrument.
- 1 Unscrew the tube connections on top of the valve and clean the tube connections with a tissue.
Note Ensure that all tube connections are unscrewed before losing the cap nut!
 - 2 Unscrew the cap nut, holding the valve.
 - 3 Remove the valve.
- ⇒ The valve can now be exchanged or reused.

Assembling the valve

- 1 Insert the valve, observing the correct positions of the driver bar and the guide.
- 2 Fasten the cap nut.
Note Ensure that the cap nut is fastened firmly. If the cap nut is loose, valve leakage may occur!
- 3 Clean the tube connections with a tissue.
- 4 Screw the tube connections to the valve.

8.4 Transporting the instrument

Note the following instructions when transporting the instrument 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



Note

Risk of spilling harmful chemicals!

Do not remove any tubes attached to the burette or valve. Harmful chemicals may leak during transport.

- 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 the housing



Note

Damage to the instrument!

Ensure that no liquid enters the interior of the instrument.
Wipe off any spills immediately.

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

- Clean the housing of the instrument using a cloth dampened with water and a mild detergent.

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.

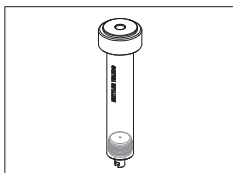
Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. If you have any questions, please contact the responsible authority or the distributor from which you purchased this device. Should this device be passed on to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

Thank you for your contribution to environmental protection.



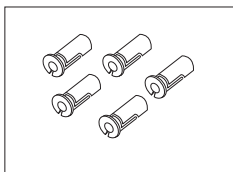
9 Accessories

	Description	Order number
	Tubing set instrument	30065464
	EasyStir GT	30065467
	Titration head GT	30041102
	Insert set titration head GT	30057635
	EasyPlus drying tube	30044701
	Molecular sieve 250 g	71478
	Valve	30042860
	Glass titration vessels, 100 mL (set of 20 pcs.)	101446
	Titration vessels polypropylene, 80 mL (set of 120 pcs.)	51109388



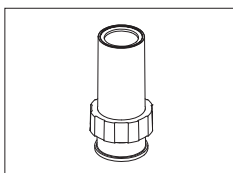
Burette 10 mL
Burette 20 mL
Burette 50 mL

30043900
30043901
30043902



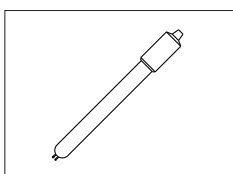
Siphon tips (5 pcs.)

23240



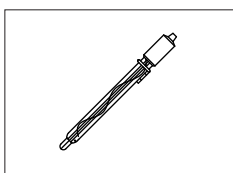
Burette cover set

30057633



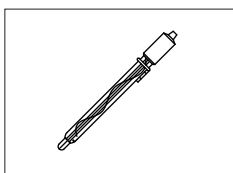
EM43-BNC: Sensor KF/Redox Ipol

30043105



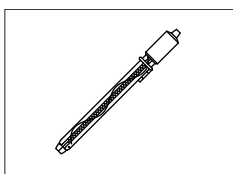
EG11-BNC: Sensor pH aqueous

30043103



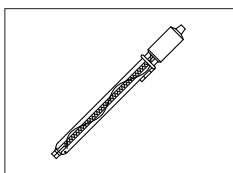
EG13-BNC: Sensor pH non-aqueous

30043104



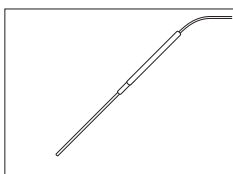
EM40-BNC: Sensor Redox mV

30043106



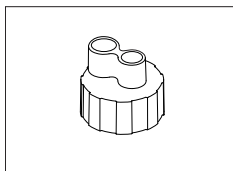
EM45-BNC: Sensor Precipitation mV

30043107



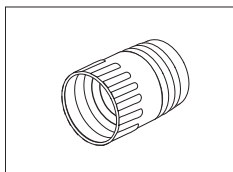
Temperature probe NTC 30K

51300164



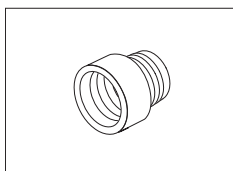
Bottle Head incl. flat seal

30060023



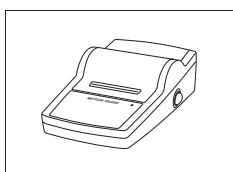
Bottle adapter
Merck, Germany
Fisher, USA

23774
23787



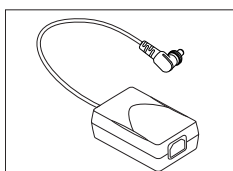
Bottle adaptor China (D34) incl. flat seal
Bottle adaptor China (D28.5) incl. flat seal
Bottle adaptor India incl. flat seal

30079456
30060026
30060024



USB-P25 compact printer (including USB-cable)

USB-P25



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	0 - 9 V DC
	Socket	4-pin Mini-DIN
Sensor pH/mV Input	Measuring range	± 2000 mV
	Socket	BNC
Polarized Sensor Ipol	Current source	0 - 5 µA
	Measuring range	± 2000 mV
	Socket	BNC
Temperature Input	Sensor type	NTC 30 KΩ at 25 °C
	Measuring range	0 - 100 °C
	Socket	Cinch (RCA)
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, linearly 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 $\overline{=}$
	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 $\overline{=}$
	Output current	1.25 A
Materials	Housing	PP GF30
	Metal parts	Stainless steel
	Touch screen cover	Polyester

EasyStir

Stirrer motor	Motor type	DC
	Voltage	0 - 9 V DC
	Cable connection	4-pin Mini-DIN
Materials	Housing	PP GF30
	Metal parts	Stainless steel

11 Declaration of Conformity

EC - DECLARATION OF CONFORMITY

EG-Konformitätserklärung

KD-Nr.: 30065475

Doku-Nr.: 20120038

The undersigned, representing the following manufacturer

Die Unterzeichnenden vertreten das folgende Unternehmen

Mettler-Toledo AG (MTANA)

Sonnenbergstrasse 74

CH-8603 Schwerzenbach, Switzerland



herewith declares that the product

hiermit deklarieren wir, dass das Produkt

Titration/Analyzer

EasyPlus Easy Pro (EasyPlus xxxxx - Series)

For additional types, see page type code

For optional equipment, see page accessories

certified model:

--

Modell für Eichprüfung

is in conformity with the provisions of the following EC directives (incl. all applicable amendments)

mit den folgenden EG-Richtlinien (Inkl. Änderungen) übereinstimmt

2006/95/EC

Low voltage (LVD)

2004/108/EC

Electromagnetic compatibility (EMC)

and that the standards have been applied.

und die Normen zur Anwendung gelangen.

Last two digits of the year in which the CE marking was affixed: **13**

Die letzten zwei Zahlen des Jahres der Erst-CE-Kennzeichnung des Produkts mit dem CE Zeichen.

CH-8603 Schwerzenbach

11.01.2013

Chris Radloff

General Manager GBA Analytical

Christian Walter

Manager Strategic Business Unit Anachem

References of standards for this declaration of conformity, or parts thereof:

Harmonized standards of Europe and Switzerland:

Safety standards:

IEC/EN61010-1:2010

EMC standards (* Emission; ** Immunity):

IEC61326-1:2005 / EN61326-1:2006 (class B *)

IEC61326-1:2005 / EN61326-1:2006 (Industrial requirements **)

Metrological standards:

--

Environmental standards:

--, --, --

Standards for Canada, USA and Australia:

CAN/CSA-C22.2 No. 61010-1-12

UL Std. No. 61010-1 (3rd Edition)

FCC, Part 15, class A (Declaration) *

AS/NZS CISPR 11 *, AS/NZS 61000.4.3 **

EC - DECLARATION OF CONFORMITY

EG-Konformitätserklärung
KD-Nr.: 30065475

Doku-Nr.: 20120038

Type code

Typenschlüssel

other types of same construction:

andere Typen/Modelle mit der gleichen Konstruktion:



EasyPlus Easy Pro

Tested type

EasyPlus Easy pH, EasyPlus ET18

Titration General pH

EasyPlus Easy Cl, EasyPlus ET28

Titration General Cl

EasyPlus Easy Ox, EasyPlus ET38

Titration General Ox

EasyPlus Easy Pro, EasyPlus ET58

Titration General Pro

EasyPlus Easy KfV, EasyPlus ET08

Titration Karl Fischer

EasyPlus Easy Na

Analyser Sodium

EasyPlus ETy8 – Series is similar to EasyPlus Easy
xxx Series, except software/initial language.

Remarks

Bemerkungen:

released: 05.06.2012 / CR

Seite 2 von 3

printed: Jan. 2013

EC - DECLARATION OF CONFORMITY

EG-Konformitätserklärung
KD-Nr.: 30065475

Doku-Nr.: 20120038

Accessories
Zubehör und Optionen



EasyPump
Sensors
Temperature sensor
External stirring unit

released: 5.06.2012 / CR

Seite 3 von 3

printed: Jan. 2013

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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.

www.mt.com/easyplustitration

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www.mt.com

Subject to technical changes.

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