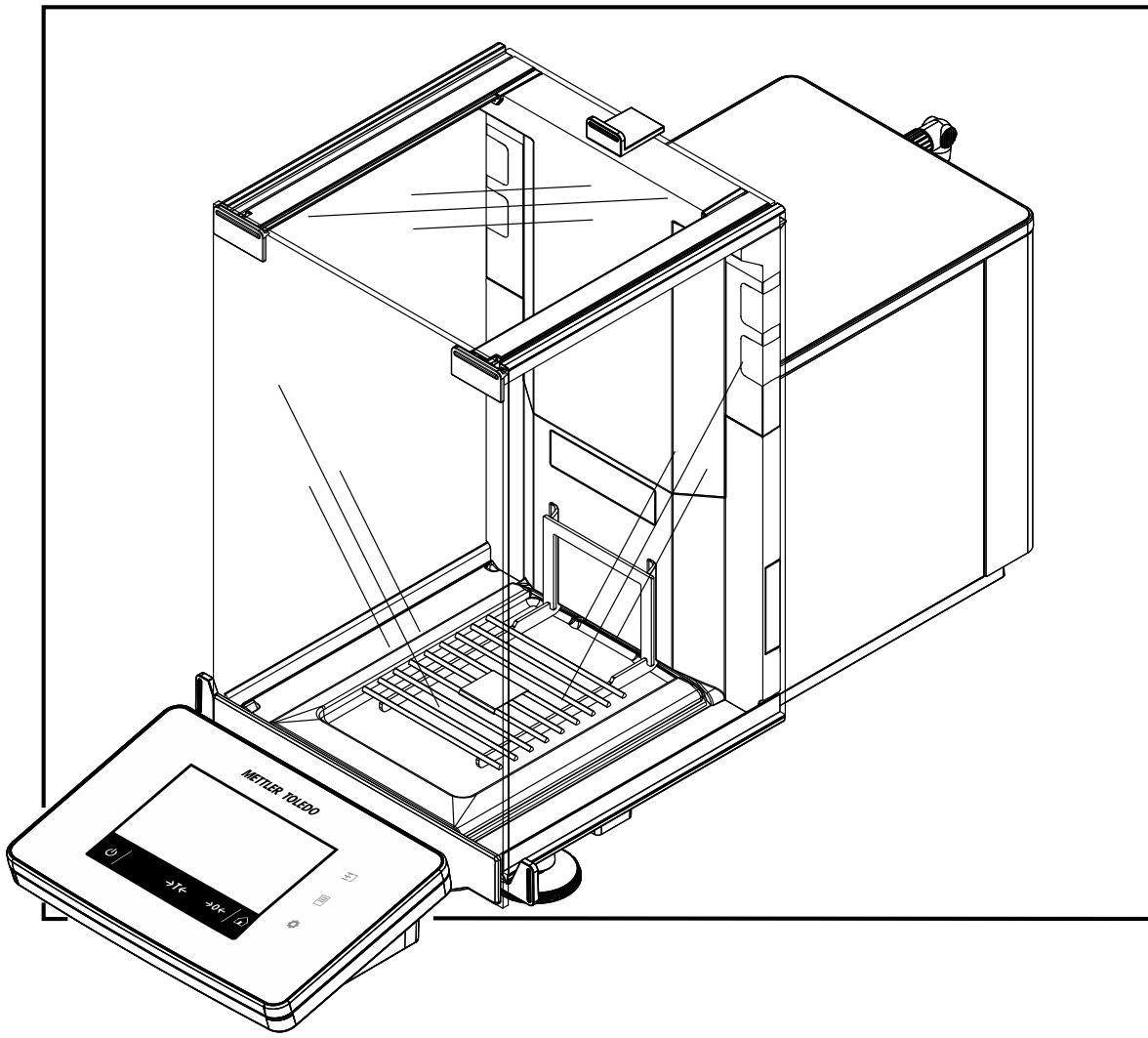
Reference Manual

Analytical Balances

XSR



METTLER TOLEDO

Table of Contents

1 Introduction

Thank you for choosing a METTLER TOLEDO balance. The balance combines high performance with ease of use.

This document is based on the software version V 2.0.301.

EULA

The software in this product is licensed under the METTLER TOLEDO End User License Agreement (EULA) for Software. ▶ www.mt.com/EULA

When using this product you agree to the terms of the EULA.

1.1 Further documents and information

▶ www.mt.com/xsr-analytical

This document is available in other languages online.

▶ www.mt.com/XSR-analytical-RM

Instructions for cleaning a balance: "8 Steps to a Clean Balance"

▶ www.mt.com/lab-cleaning-guide

Search for software downloads ▶ www.mt.com/labweighing-software-download

Search for documents ▶ www.mt.com/library

For further questions, please contact your authorized METTLER TOLEDO dealer or service representative.

▶ www.mt.com/contact

1.2 Explanation of conventions and symbols used

Conventions and symbols

Key and/or button designations and display texts are shown in graphic or bold text, e.g., ✎, **Edit**.

Note For useful information about the product.

Refers to an external document.

Elements of instructions

In this manual, step-by-step instructions are presented as follows. The action steps are numbered and can contain prerequisites, intermediate results and results, as shown in the example. Sequences with less than two steps are not numbered.

- Prerequisites that must be fulfilled before the individual steps can be executed.

1 Step 1

⇨ Intermediate result

2 Step 2

⇨ Result

1.3 Acronyms and abbreviations

Original term	Explanation
ASTM	American Society for Testing and Materials
EMC	Electromagnetic Compatibility
FCC	Federal Communications Commission
GWP	Good Weighing Practice
ID	Identification
LPS	Limited Power Source
MT-SICS	METTLER TOLEDO Standard Interface Command Set
NA	Not Applicable
OIML	Organisation Internationale de Métrologie Légale (International Organization of Legal Metrology)
RFID	Radio-frequency identification
RM	Reference Manual
sd	Standard deviation
SELV	Safety Extra Low Voltage
SOP	Standard Operating Procedure
SQC	Statistical Quality Control
UM	User Manual
USB	Universal Serial Bus
USP	United States Pharmacopeia

1.4 Product range

1.4.1 XSR analytical balances

Balance	Models designation
	Readability: **0.01 mg** • XSR105 • XSR105DU • XSR205DU • XSR225DU
	Readability: **0.1 mg** • XSR64 • XSR104 • XSR204 • XSR204DR • XSR304

1.5 Compliance information

National approval documents, e.g., the FCC Supplier Declaration of Conformity, are available online and/or included in the packaging.

▶ http://www.mt.com/ComplianceSearch

Contact METTLER TOLEDO for questions about the country-specific compliance of your instrument.

▶ www.mt.com/contact

United States of America

This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2 Safety Information

Two documents named "User Manual" and "Reference Manual" are available for this instrument.

- The User Manual is printed and delivered with the instrument.
- The electronic Reference Manual contains a full description of the instrument and its use.
- Keep both documents for future reference.
- Include both documents if you transfer the instrument to other parties.

Only use the instrument according to the User Manual and the Reference Manual. If you do not use the instrument according to these documents or if the instrument is modified, the safety of the instrument may be impaired and Mettler-Toledo GmbH assumes no liability.

2.1 Definitions of signal words and warning symbols

Safety notes contain important information on safety issues. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results. Safety notes are marked with the following signal words and warning symbols:

Signal words

DANGER	A hazardous situation with high risk, resulting in death or severe injury if not avoided.
WARNING	A hazardous situation with medium risk, possibly resulting in death or severe injury if not avoided.
CAUTION	A hazardous situation with low risk, resulting in minor or moderate injury if not avoided.
NOTICE	A hazardous situation with low risk, resulting in damage to the instrument, other material damage, malfunctions and erroneous results, or loss of data.

Warning symbols

General hazard: read the User Manual or the Reference Manual for information about the hazards and the resulting measures.

Electrical shock

Notice

2.2 Product-specific safety information

Intended use

This instrument is designed to be used by trained staff. The instrument is intended for weighing purposes.

Any other type of use and operation beyond the limits of use stated by Mettler-Toledo GmbH without consent from Mettler-Toledo GmbH is considered as not intended.

Responsibilities of the instrument owner

The instrument owner is the person holding the legal title to the instrument and who uses the instrument or authorizes any person to use it, or the person who is deemed by law to be the operator of the instrument. The instrument owner is responsible for the safety of all users of the instrument and third parties.

Mettler-Toledo GmbH assumes that the instrument owner trains users to safely use the instrument in their workplace and deal with potential hazards. Mettler-Toledo GmbH assumes that the instrument owner provides the necessary protective gear.

⚠ WARNING

Death or serious injury due to electric shock

Contact with parts that carry a live current can lead to death or injury.

1 Only use the METTLER TOLEDO power cable and AC/DC adapter designed for your instrument.
2 Connect the power cable to a grounded power outlet.
3 Keep all electrical cables and connections away from liquids and moisture.
4 Check the cables and the power plug for damage and replace them if damaged.

NOTICE

Damage to the instrument or malfunction due to the use of unsuitable parts

– Only use parts from METTLER TOLEDO that are intended to be used with your instrument.

3 Design and Function

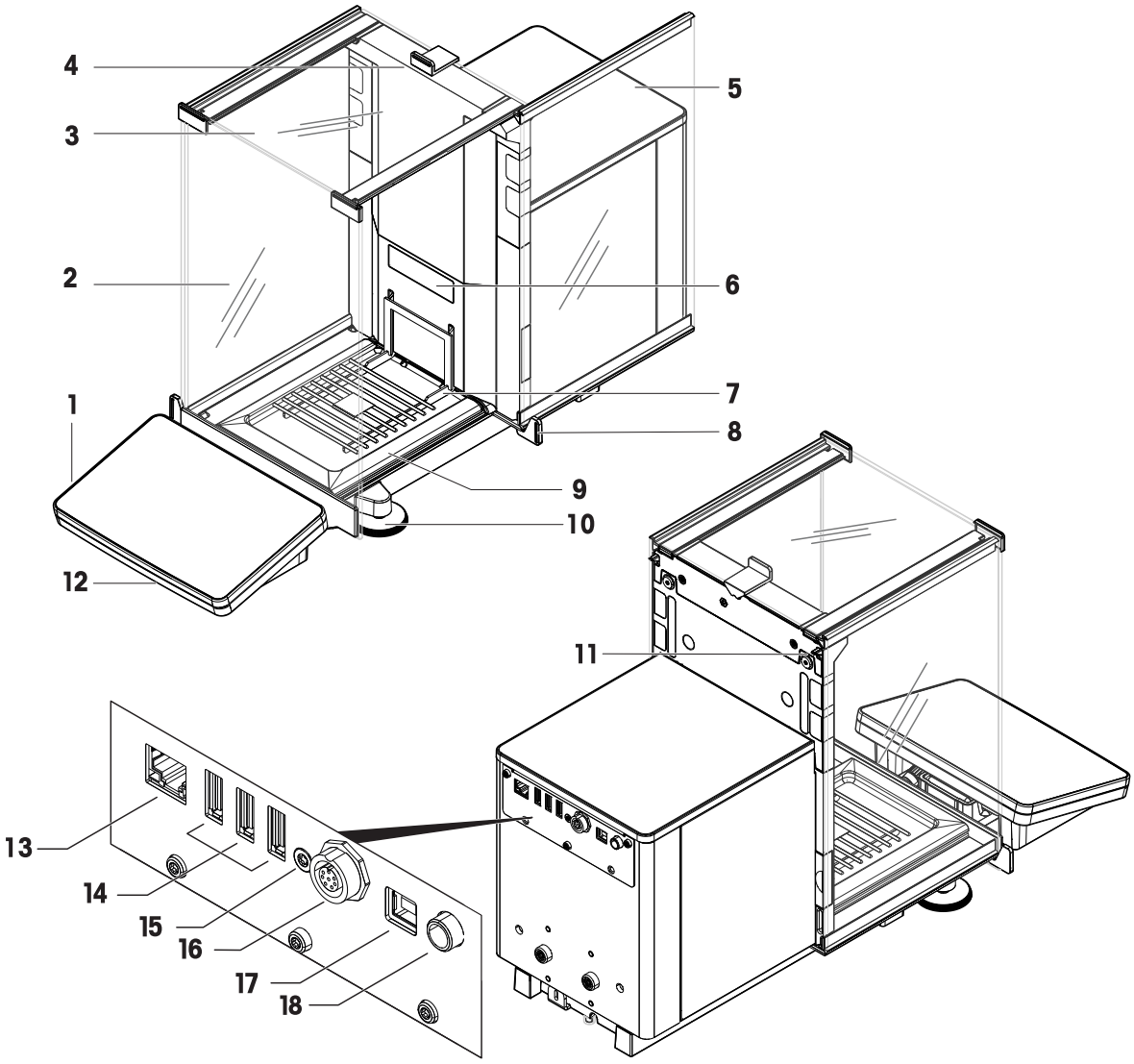
3.1 Function description

The XSR line comprises a range of balances that differ from each other due to their weighing range and resolution. The balances of the XSR line combine a large number of weighing and adjustment possibilities with a simple operation handling.

The following features are common to all models of the XSR analytical line:

- 4.3-inch capacitive color TFT-touch screen.
- Fully automatic adjustment using internal weights.
- Various methods that can be defined individually.
- Various routine tests that can be defined individually.
- History about performed tests and adjustments.
- Motor driven side doors.
- Easily removable draft shield elements.
- Built-in level sensor and leveling aid for fast and easy leveling.

3.2 Overview balance

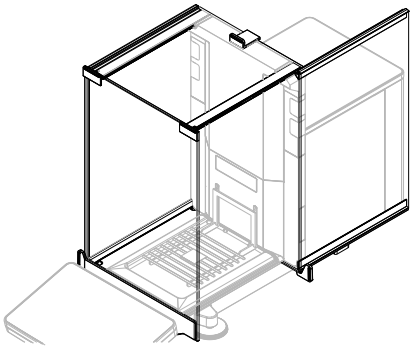


1	Terminal	**10**	Leveling feet
2	Front panel draft shield	**11**	Side door release lever
3	Top door draft shield	**12**	Status light
4	Handle for top door	**13**	Ethernet port
5	Side door draft shield (right/left)	**14**	USB-A ports (to device)
6	Balance type designation plate	**15**	Service seal
7	Weighing pan	**16**	Socket for terminal connection cable
8	Door handle	**17**	USB-B port (to host)
9	Drip tray	**18**	Socket for power adapter

3.3 Components description

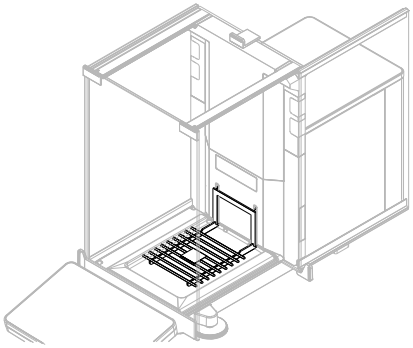
3.3.1 Draft shield

The draft shield is a housing device that protects the weighing area against environmental impacts like drafts or moisture. The side doors can be opened manually or automatically. The top door can be opened manually.



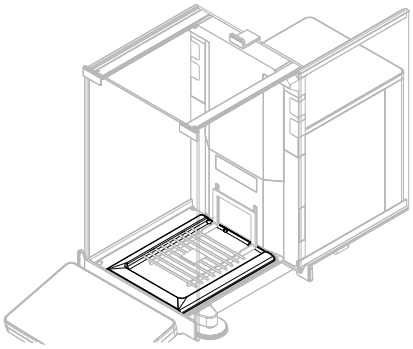
3.3.2 Weighing pan

The weighing pan is the load receptor that serves directly to accommodate the weighing item.



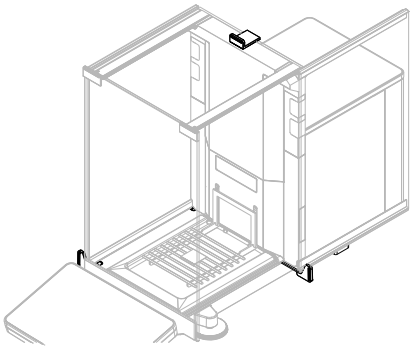
3.3.3 Drip tray

The drip tray is positioned below the weighing pan on the weighing chamber base plate. The primary purpose of a drip tray is that of a dirt trap to ensure quick cleaning of the balance.



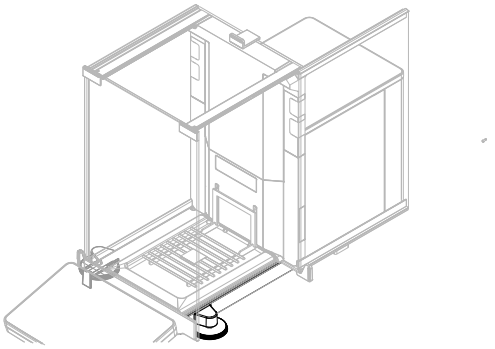
3.3.4 Door handle

The door handles are mounted on the door slides and are used to open the side and top doors of the draft shield manually.



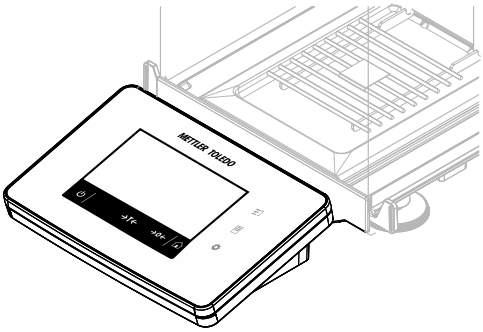
3.3.5 Leveling feet

The balance stands on two height-adjustable feet. These feet are used to level the balance.



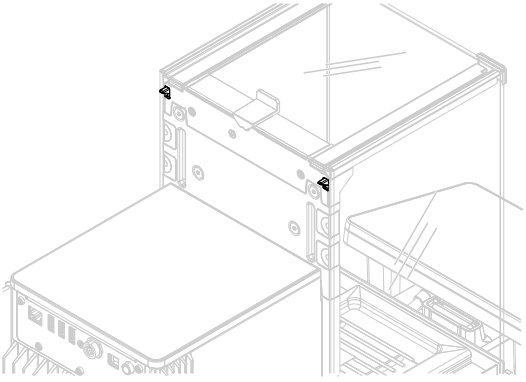
3.3.6 Terminal

The 4.3-inch balance terminal has a touch sensitive display. Further, on the front side of the terminal is a status light LED strip that indicate the current status of the balance.

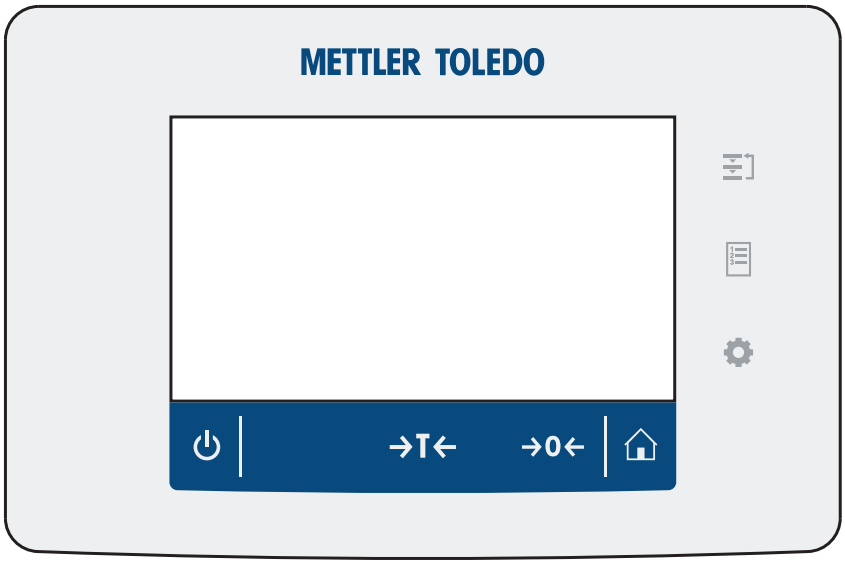


3.3.7 Side door release lever

The side door release lever is located on the back side of the partition panel and locks/unlocks the draft shield side door.



3.4 Overview terminal



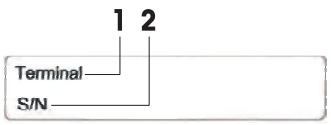
	Name	Description
⏻	ON/OFF	Switches the balance on/off. By tapping ⏻ the balance is not completely switched off but goes into standby mode. To switch the balance completely off, it must be unplugged from the power supply. **Note** Do not disconnect the balance from the power supply unless the balance is not used for an extended period of time.
→T←	Tare	Tares the balance. This function is used when the weighing process involves containers. After taring the balance, the screen shows Net which indicates that all displayed weights are net.
→0←	Zero	Zeroes the balance. The balance must always be zeroed before starting the weighing process. After zeroing, the balance sets a new zero point.
⌂	Home	To return from any menu level to the main weighing screen.
↕	Open/close door	Opens the weighing chamber door to the left or to the right (default value).
	Methods	Opens the section **Methods**.
	Protocol	Opens the section **Protocol**.
⚙	**Balance menu**	Opens the section **Balance menu**.

3.5 Overview type plate

The information on the type plate helps to identify the balance and terminal.

Terminal type plate

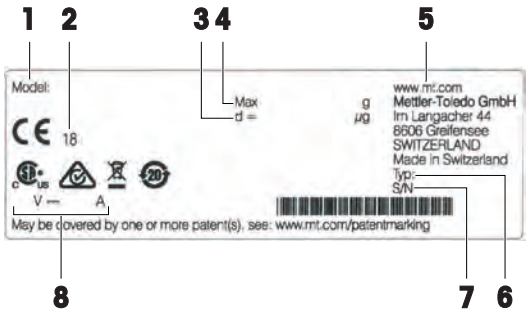
The terminal type plate is located on the terminal and contains the following information:



1. Terminal type
2. Terminal serial number

Weighing unit type plate

The balance type plate is located on the side of the weighing unit and contains the following information:

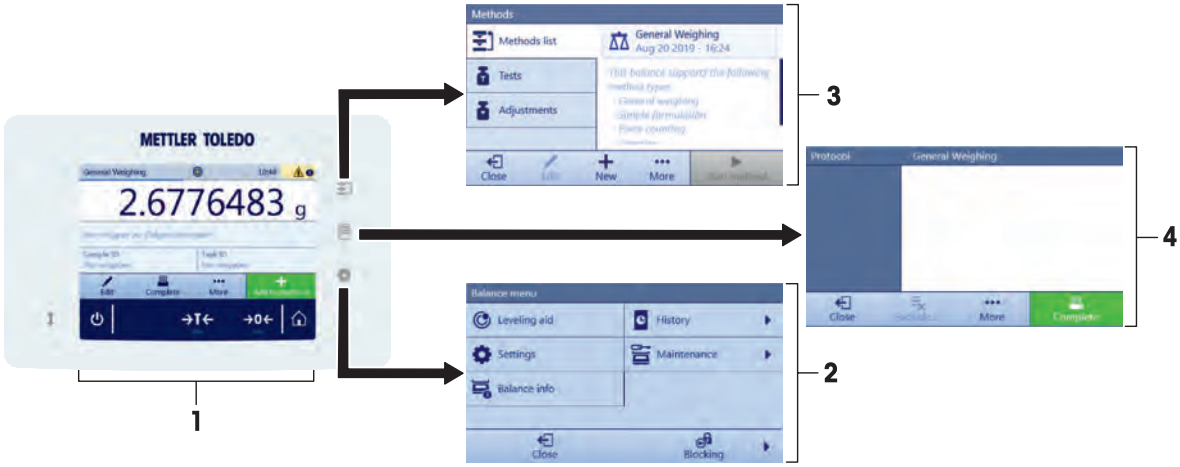


1. Designation of balance model
2. Year of manufacture
3. Readability
4. Maximum capacity
5. Manufacturer
6. Balance type
7. Serial number
8. Power supply

3.6 User interface

3.6.1 Main sections at a glance

The main weighing screen (1) is the central navigation point where all the menus and settings can be found. The **Balance menu** (2), **Methods** (3) and **Protocol** (4) open when pressing the symbols on the terminal.



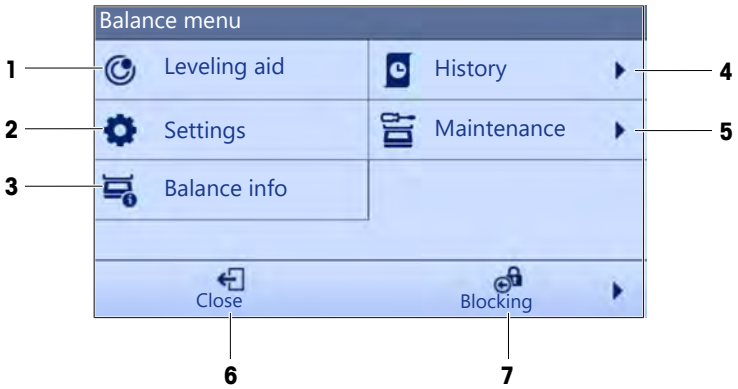
See also

- Main weighing screen ▸ Page 18
- Work screen "Balance menu" ▸ Page 18
- Work screen "Methods" ▸ Page 19
- Work screen "Protocol" ▸ Page 19

3.6.2 Main weighing screen

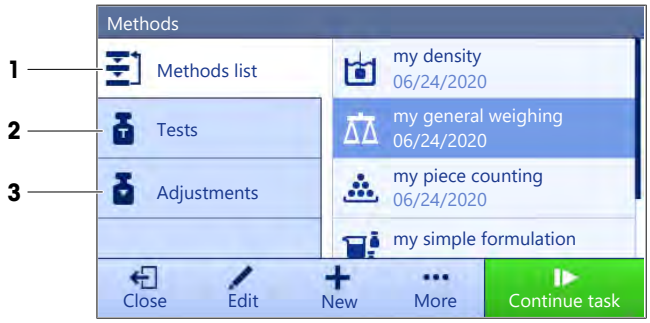
	Name	Description
1	Weighing value field	Shows the current weighing value.
2	Level indicator	Indicates if the balance is leveled (green) or not (red).
3	Warning and error message area	Shows current warning and/or error messages.
4	Button **Add to protocol**	Adds the result to the protocol. Depending on the selected method, the button can have different functions.
5	Weighing action field	Contains actions referring to the current task.
6	Method information area	Contains information about the sample, method or task IDs.
7	SmartTrac	Used as a weighing aid to define a target weight with upper and lower tolerances.
8	Weighing value area	Shows the results of the current weighing process.
9	**Method name**	Shows the name of the current method.

3.6.3 Work screen "Balance menu"



	Name	Description
1	**Leveling aid**	Opens the leveling dialog.
2	**History**	Opens the history dialog.
3	**Balance info**	Shows Balance information.
4	**Settings**	Opens the complete settings dialog.
5	**Maintenance**	Opens the balance maintenance dialog.
6	**Exit / Block balance**	Opens the logout / block balance dialog.

3.6.4 Work screen "Methods"



	Name	Description
1	**Methods list**	Lists the methods already defined by the user. Methods can be created, edited, cloned, started, or deleted.
2	**Tests**	Lists the tests already defined by the user. • Sensitivity tests • Repeatability tests • Eccentricity tests Routine tests can be created, edited, started, or deleted. A list of the tests previously performed is available in the **History**.
3	**Adjustments**	Shows the currently selected internal or external adjustment. The adjustment can be edited or started. A list of the adjustments previously performed is available in the **History**.

See also

History ▸ Page 61

3.6.5 Work screen "Protocol"

	Name	Description
1	Result state	Shows the state of the weighing process.
2	Sample ID	Shows the Sample ID of the weighing.
3	Gross weight	Shows the gross weight. **D**: indicates that the value was unstable. *: indicates that the value was calculated.
4	Timestamp	Shows the individual timestamp of each weighing item.

	Name	Description
5	Balance status	Shows stability, level state of the balance, minimum weight, tolerance state and test and adjustment state.
6	**Exclude result**	Excludes the current protocol result. A comment can be added to the excluded result, e.g., to describe the reason of the exclusion. Depending on the format of the protocol printout, the excluded result can be printed or not.
7	**More**	Opens the dialog **More**. • **Start adjustment** • **Change display unit** • **Configure tare** • **Configure zero** • **Save as method with templates** (only available for methods with the option **Templates**)
8	**Complete**	Opens the dialog **Complete task**. • **Print task label manually** • **Print protocol manually**

3.6.6 Icons and symbols

3.6.6.1 System status icons

System messages can appear due to a user action, a user input or a system process. Some messages leave it up to the user to choose upon acting, they will disappear after acknowledging. Other messages remain persistent, so the user can defer them but eventually has to handle them. These messages can be seen in the main status bar on the upper right-hand side of the display.

Icon	Name	Description
	The balance is out of level.	The balance must be leveled. Information about leveling the balance can be found in the section Leveling the balance. When the balance is leveled the symbol ◉ appears.
	Information	Information messages appear due to user actions or system processes and offer opportunities that are related to the current action or process.
	Warning	Warning messages appear due to user actions or system processes that could lead to a problem that can be prevented.
	Error	Error messages appear due to user actions or system processes that have failed. It is mostly still possible to handle such a problem.

3.6.6.2 Weighing status icons

Weighing status icons appear due to the weight value matching certain quality criteria. The information on the status can be looked by tapping on any of the visible weighing status icons.

Icon	Name	Description
	Stability indicator	When the stability indicator appears, the balance is not stable. Make sure that the balance is placed at an adequate location. Information about the adequate location can be found in the section Selecting the location.
Net	Net indicator	Appears when the tare key has been pressed and the tare weight has been subtracted.

	Calculated value	The current weight value is calculated. This symbol only appears in the weighing value area when a container has been used with the function **Preset tare**.
	Minimum weight violation	The current weight value is smaller than the defined minimum weight. Make sure that the weight is larger than the minimum weight.
	Balance invalid	The current balance configuration is invalid or quality criteria have not been fulfilled according to the GWP approved definition.
	Weight not ready	The current weight measurement is not ready according to the GWP approved definition. This can be caused an overload, an underload, or a minimum weight violation.
	Weight ready	The current weight measurement is ready according to the GWP approved definition. It can be added to the protocol.
	External ionizer discharging	The external ionizer is currently discharging.

4 Installation and Putting into Operation

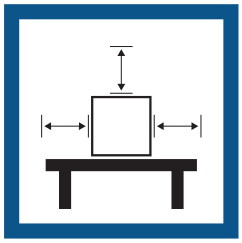
4.1 Selecting the location

A balance is a sensitive precision instrument. The location where it is placed will have a profound effect on the accuracy of the weighing results.

Requirements of the location

Place indoors on stable table

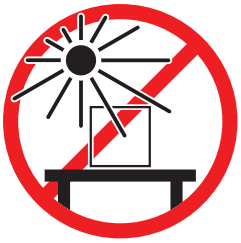
Ensure sufficient spacing



Level the instrument

Provide adequate lighting

Avoid direct sunlight



Avoid vibrations

Avoid strong drafts

Avoid temperature fluctuations

Sufficient spacing for balances: > 15 cm all around the instrument

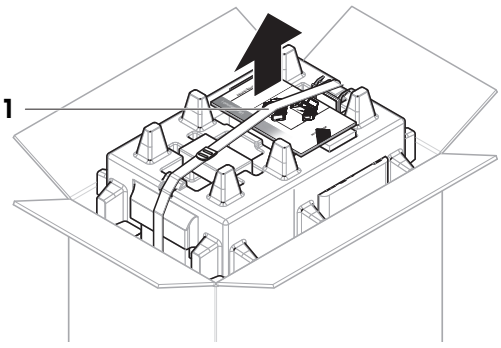
Take into account the environmental conditions. See "Technical Data".

4.2 Unpacking the balance

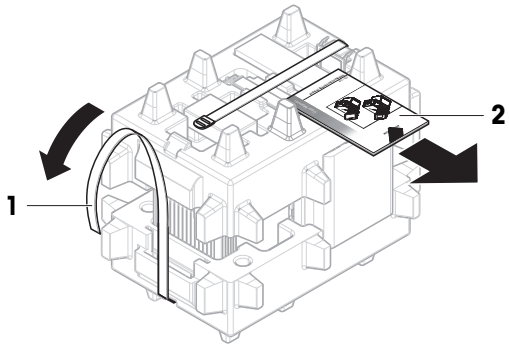
Check the package, the packaging elements and the delivered components for damages. If any components are damaged, please contact your METTLER TOLEDO service representative.

Depending on the balance model, the components may look different. The procedure is always the same.

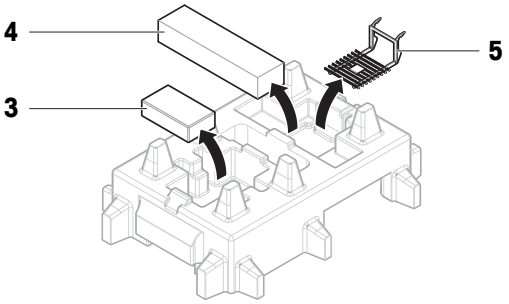
1 Open the box and lift the package out using the lifting strap (**1**).



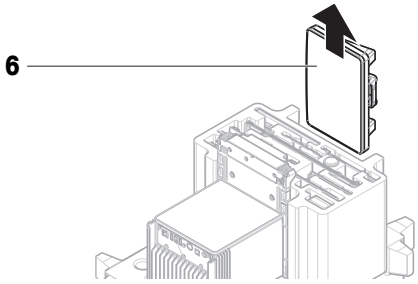
2 Open the lifting strap (**1**) and remove the User Manual (**2**).



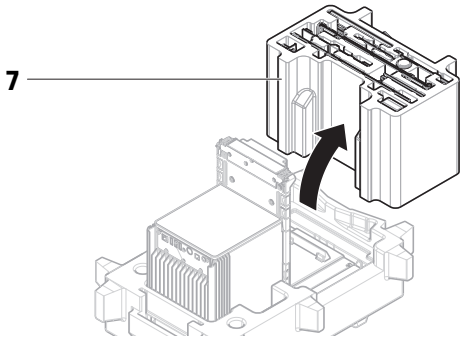
3 Remove the upper part of the package and remove the set with the AC adapter and power cable (**3**), the box containing several accessories (**4**), and the weighing pan (**5**).



4 Carefully remove the terminal (**6**).



5 Carefully remove the package set with the draft shield doors and the display holder (**7**).

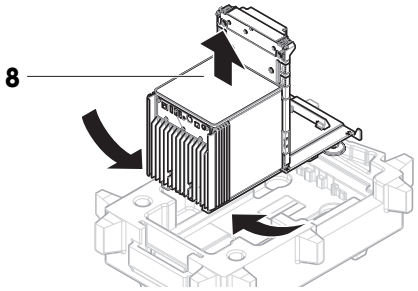


6 Carefully remove the weighing unit (**8**) from the bottom packaging.

7 Remove the protective bag.

8 Store all parts of packaging in a safe place for future use.

⇨ The weighing unit is ready for assembling.



4.3 Scope of delivery

Balance

- Weighing unit
- Draft shield
- Drip tray and weighing pan
- Terminal with terminal holder and terminal connection cable
- AC/DC adapter with country-specific power cable
- MC Link Software (only comparators)

Documentation

- User Manual
- Production certificate
- Declaration of Conformity

Accessories

- ErgoClip basket
- SmartPrep, 2 pcs
- Brush

4.4 Installation

4.4.1 Attaching the terminal

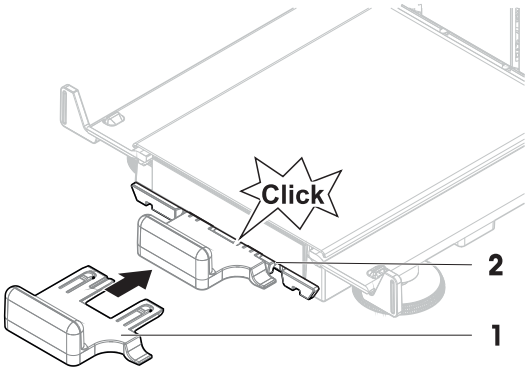
NOTICE

Damage to the cables due to careless handling

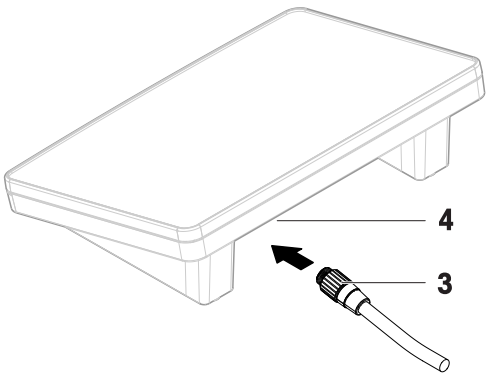
– Do not kink or twist the cables.

The following procedure describes the assembling of the terminal.

1 Insert the slides of the display holder (1) into the front of the weighing unit (2).

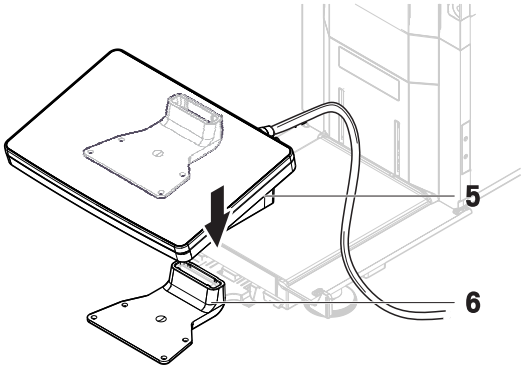


2 Connect the terminal cable (3) with the terminal (4). Consider the pin assignment.



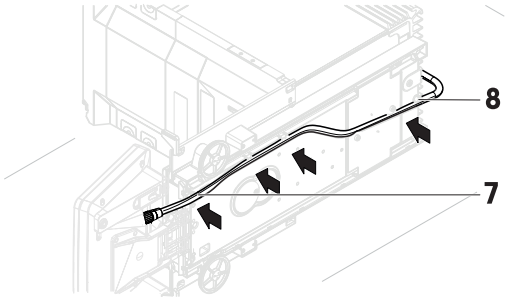
3 Place the terminal (5) onto the display holder (6).

4 Carefully tilt the balance to the left side.



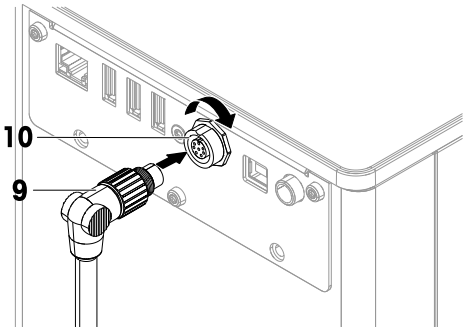
5 Lead the cable (7) through the cable channel (8).

6 Carefully put the balance back on its feet.

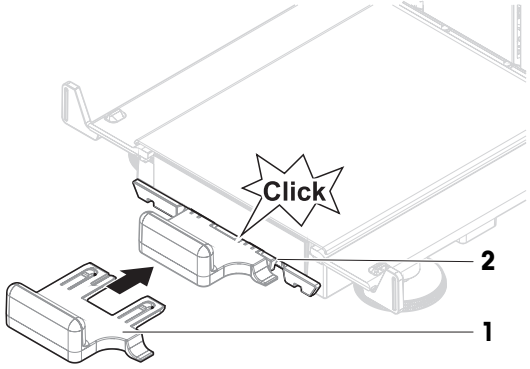


7 Insert the terminal cable (9) into the socket of the balance (10). Consider the pin assignment.

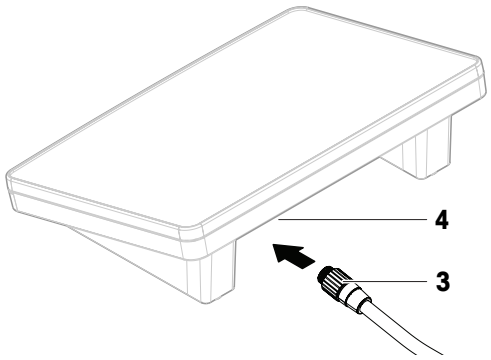
⇨ The terminal is ready.



1 Insert the slides of the display holder (**1**) into the front of the weighing unit (**2**).

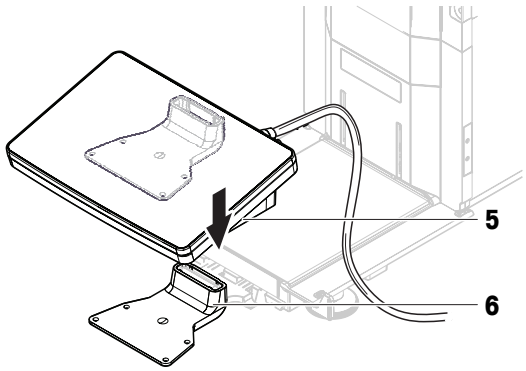


2 Connect the terminal cable (**3**) with the terminal (**4**). Consider the pin assignment.



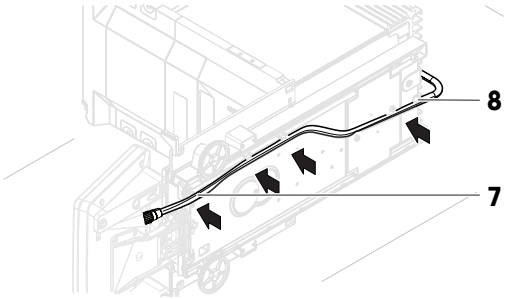
3 Place the terminal (**5**) onto the display holder (**6**).

4 Carefully tilt the balance to its side.



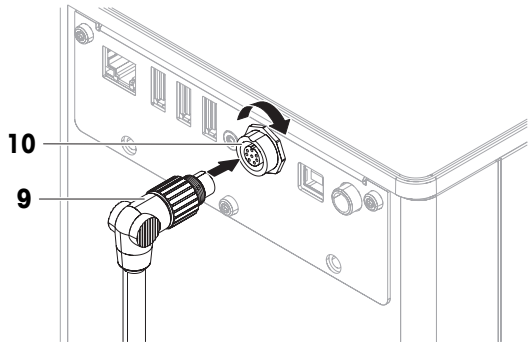
5 Lead the cable (**7**) through the cable channel (**8**).

6 Carefully put the balance back on its feet.



7 Insert the terminal cable (**9**) into the socket of the balance (**10**). Consider the pin assignment.

⇨ The terminal is ready.



4.4.2 Assembling the balance

⚠ CAUTION

Injury due to sharp objects or broken glass

Instrument components, e.g., glass, can break and lead to injuries.

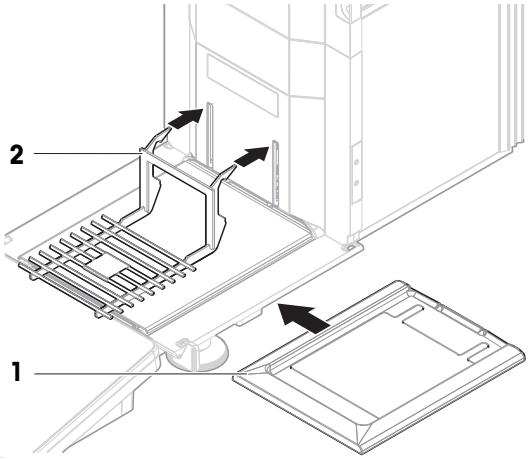
– Always proceed with focus and care.

Note

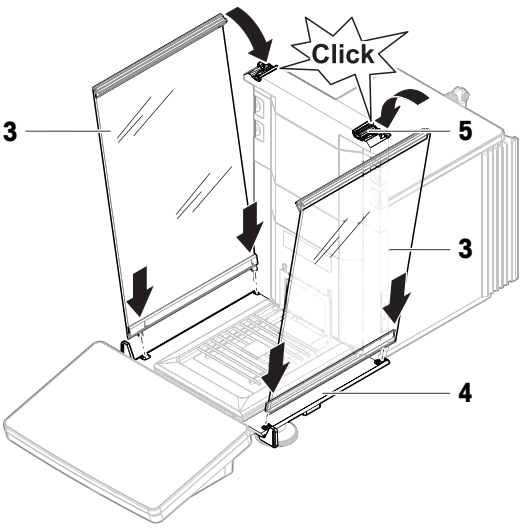
Depending on the balance model, the components may look different. The procedure is always the same.

1 Insert the drip tray (**1**).

2 Carefully mount the weighing pan (**2**).

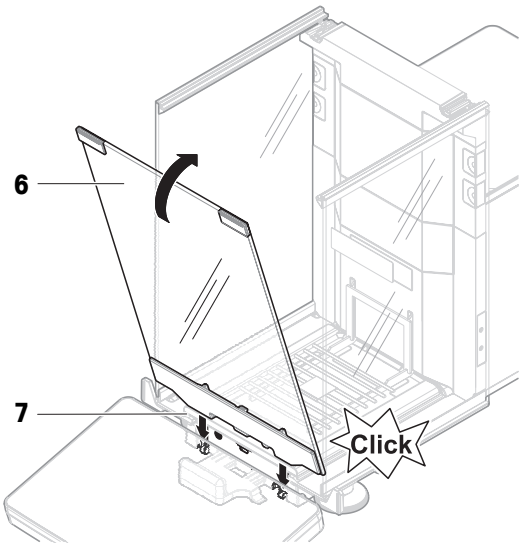


3 Place the side doors (**3**) into the grooves of the door slides (**4**) and tilt them up until they engage with the door lever (**5**). Consider the marks on the bottom frames (L = left / R = right).

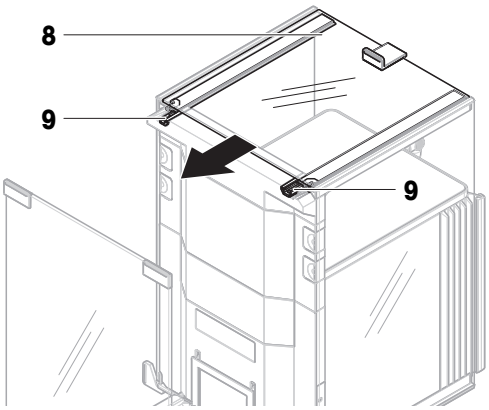


4 Insert the front panel (**6**) into the grooves (**7**) and tilt it up until it engages.

5 Open the side doors.



6 Fit the top door (**8**) along the top frame of the side doors and into the rails of the back wall (**9**).
7 Push the top door (**8**) towards the front.
8 Close the side doors.
⇨ The balance is assembled and ready to be put into operation.



4.5 Putting into operation

4.5.1 Connecting the balance

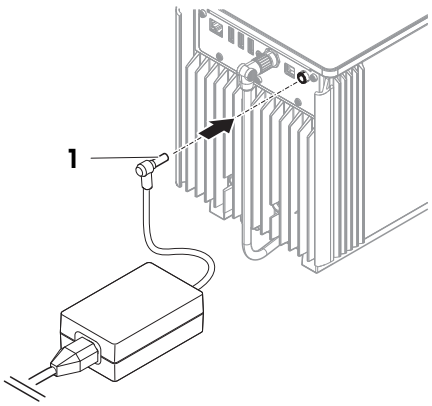
⚠ WARNING

Death or serious injury due to electric shock

Contact with parts that carry a live current can lead to death or injury.

1 Only use the METTLER TOLEDO power cable and AC/DC adapter designed for your instrument.
2 Connect the power cable to a grounded power outlet.
3 Keep all electrical cables and connections away from liquids and moisture.
4 Check the cables and the power plug for damage and replace them if damaged.

1 Install the cables in such a way that they cannot be damaged or interfere with operation.
2 Insert the plug of the AC/DC adapter (**1**) in the power inlet of the instrument.
3 Secure the plug by firmly tightening the knurled nut.
4 Insert the plug of the power cable into a grounded power outlet that is easily accessible.
⇨ After connecting the balance to power, the side doors open and close slowly for initialization.



Note

Do not connect the instrument to a power outlet controlled by a switch. After switching on the instrument, it must warm up before giving accurate results.

4.5.2 Switching on the balance

EULA (End User License Agreement)

When the balance is switched on the first time, the EULA (End User License Agreement) appears on the screen.

1 Read the conditions.
2 Tap **I accept the terms in the license agreement.** and confirm with ✓ **OK**.

Warming up

Before the balance gives reliable results, it must warm up. This takes at least 120 minutes after connecting the balance. When the balance is switched on from standby, it is ready immediately.

- The balance has warmed up.

– Press ⏻.

  ⇨ The main weighing screen appears.

When the balance is switched on, the main weighing screen appears. The display will always show the screen of the method last used before switching it off.

4.5.3 Leveling the balance

Exact horizontal and stable positioning are essential for repeatable and accurate weighing results.

If the message **Balance is out of level** appears:

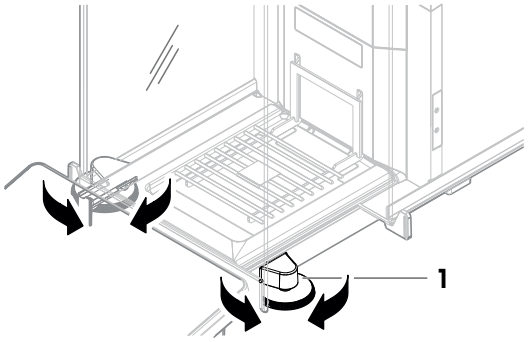
1 Tap ▶ **Level the balance**.

  ⇨ The **Leveling aid** opens.

2 Turn both leveling feet (**1**) as instructed on the display until the dot is in the center of the level indicator

The leveling aid can also be accessed through the balance menu:

Navigation: ⚙ Balance menu > ◎ Leveling aid



4.5.4 Performing an internal adjustment

- The adjustment **Strategy** is set to **Internal adjustment**.

1 Open the **Methods** section, tap 🔒, select the adjustment, and tap ▶ **Start**
- or -
from the main weighing screen, tap ••• **More** and tap **Start adjustment**.

  ⇨ **Internal adjustment** is being executed.

  ⇨ When the adjustment has been completed, an overview of the adjustment results appears.

2 Tap 🖶 **Print** if you want to print the results.

3 Tap ✓ **Finish adjustment**.

⇨ The balance is ready.

4.6 Performing a simple weighing

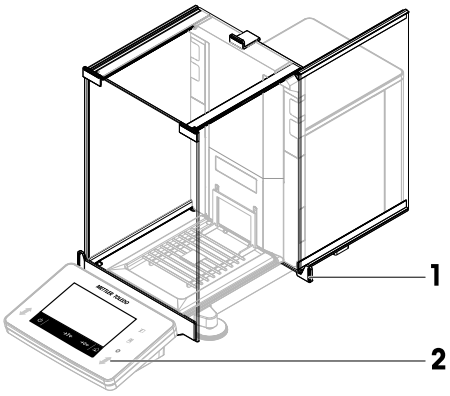
4.6.1 Opening and closing the draft shield doors

– Open the door manually with the door handle (1) or touch the key ⇕ on the terminal (2).

The doors can be configured to open and close in different ways.

See also

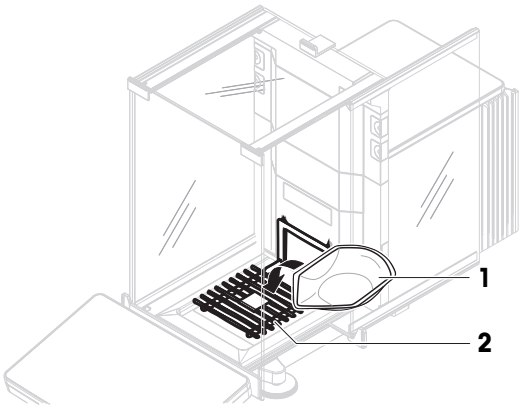
📄 Doors ▶ Page 67



4.6.2 Taring the balance

If a sample vessel is used, the balance must be tared.

1 Open the draft shield.
2 Clear the weighing pan.
3 Close the draft shield.
4 Press →0← to zero the balance.
5 Open the draft shield.
6 Place the sample vessel (**1**) on the weighing pan (**2**).
7 Close the draft shield.
8 Press →T← to tare the balance.
⇨ The balance is tared. The icon Net appears.



4.6.3 Zeroing the balance

1 Open the draft shield.
2 Clear the weighing pan.
3 Close the draft shield.
4 Press →0← to zero the balance.
⇨ The balance is zeroed.

4.6.4 Performing a weighing

1 Open the draft shield.
2 Place the weighing object into the sample vessel.
3 Close the draft shield.
4 Tap + **Add to protocol** if you want to report the weighing result.
⇨ The weight value is listed in the **Protocol**.

4.6.5 Completing the weighing

1 To save the weighing protocol, tap **Complete**.
⇨ The window **Complete task** opens.
2 Select an option to save or print the protocol.
⇨ The respective menu window opens.
3 Follow the instructions of the wizard.
4 Tap ✓**Complete**
⇨ The **Protocol** is saved/printed and then cleared.

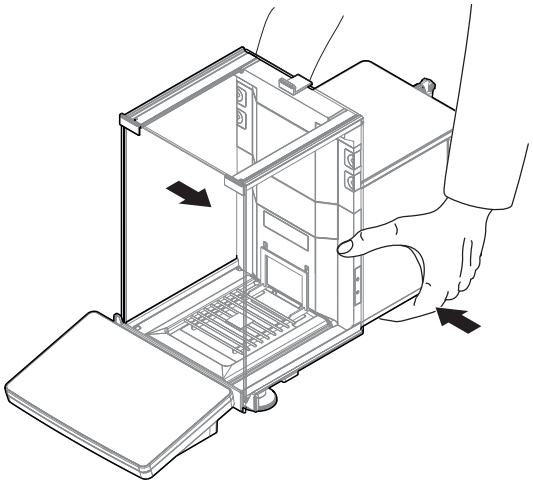
4.7 Transporting, packing and storing

4.7.1 Transporting the balance over short distances

1 Disconnect the AC/DC adapter and unplug all interface cables.
2 Hold the weighing platform with both hands and carry the balance in horizontal position to the target location. Consider the requirements of the location.

If you want the balance put into operation, proceed as follows:

1 Connect in reverse order.
2 Level the balance.
3 Perform an internal adjustment.



4.7.2 Transporting the balance over long distances

METTLER TOLEDO recommends using the original packaging for transportation or shipment of the balance or balance components over long distances. The elements of the original packaging are developed specifically for the balance and its components and ensure maximum protection during transportation.

See also

Unpacking the balance ▸ Page 22

4.7.3 Packing and storing

Packing the balance

Store all parts of packaging in a safe place. The elements of the original packaging are developed specifically for the balance and its components, and ensures maximum protection during transportation and storage.

Storing the balance

Only store the balance under the following conditions:

- Indoor and in the original packaging
- According to the environmental conditions, see "Technical Data"

Note

When storing for longer than 6 months, the rechargeable battery may become empty (only date and time get lost).

See also

Technical Data ▸ Page 132

4.8 Installing devices

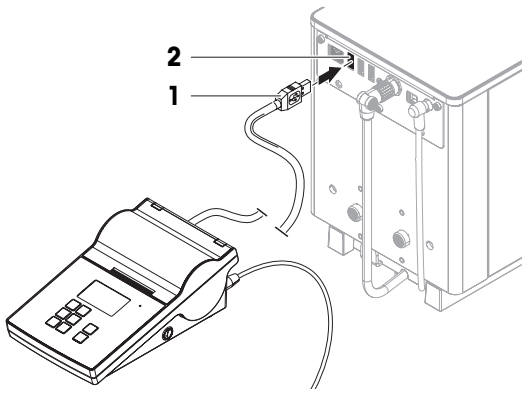
4.8.1 Connecting a printer via USB

NOTICE

Damage to the device from not following the instructions of the printer's manual.

– To use the printer, consult its User Manual.

- The USB cable is connected to the printer.
- The printer is connected to the power outlet and switched on.
- The main weighing screen is shown on the balance terminal.



1 Connect the USB cable (**1**) to one of the USB-A ports (**2**) of the balance.
   ⇨ The balance detects the printer automatically and the dialog **Add device** appears.
   ⇨ A message, e.g., "System has found a device of type: Printer P-XX" appears.
2 Set a name for the printer, then tap → **Next**.
   ⇨ The message "The connection to the device is configured and is now ready to use" appears.
3 Tap ✓ **OK** to close the dialog.
   ⇨ The printer is connected and saved to the system.
   ⇨ The dialog **Printer settings** opens.
4 If needed, configure the printer or print a test page.

Adding a printer via the balance settings

Another way to add a printer is through the balance settings.

Navigation: ⚙ Balance menu > ⚙ Settings > Devices / Printers

- The USB cable is connected to the printer.
- The printer is connected to the power outlet and switched on.

1 Tap + **Add device**.
   ⇨ The message "**Please connect the device via USB.**" appears.
2 Connect the device to one of the USB-A ports of the balance.
3 Follow the instructions from the wizard.

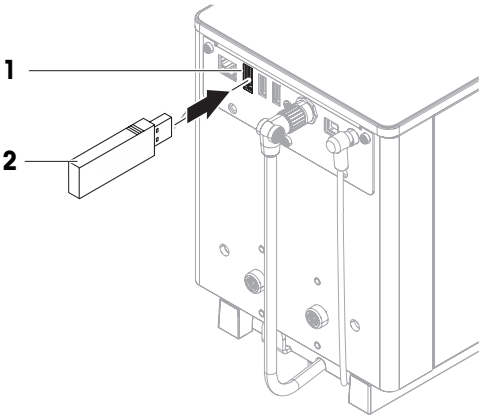
See also

Devices / Printers ▸ Page 70

4.8.2 Connecting a printer via Bluetooth

Navigation: ⚙ Balance menu > ⚙ Settings > Devices / Printers

- The printer is connected to the power outlet and switched on.



1 Connect the Bluetooth USB adapter (**1**) to one of the USB-A ports (**2**) of the balance.
2 Connect the Bluetooth RS adaptor (**3**) to the printer (**4**).

3 Tap **+Add device**.

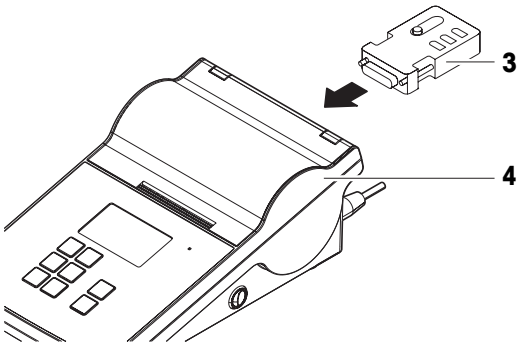
⇨ The dialog **Add device** opens.

4 Select **Bluetooth connection** and tap **→Next**.

⇨ The dialog "Searching for devices" opens and a list of possible Bluetooth devices is displayed.

5 Check the bottom of the Bluetooth RS adaptor (**3**) at the printer for the MAC address (unique device address), select this one in the list and tap **→Next**

6 The dialog **Authentication activated** opens and the **PIN Code** is displayed.



7 Tap **→Next** to confirm the Bluetooth connection.

⇨ The dialog closes, the printer is connected to the balance via Bluetooth.

⇨ The dialog **Printer settings** opens.

8 If needed, configure the printer or print a test page.

Note

If the USB adapter is removed from the balance and plugged in again, the Bluetooth connection will be detected automatically. This may take up to 30 seconds.

Note

The balance always pairs with the Bluetooth RS adaptor, but not with the printer that is attached to it. As soon as the user re-uses a Bluetooth RS adaptor for another printer, the user must remove the configured printer in the balance software and add the new one.

See also

- Bluetooth ▸ Page 70
- Devices / Printers ▸ Page 70

4.8.3 Connecting a USB device

This section describes how to connect USB devices without an own power adapter, e.g., a foot switch or an ErgoSens. The connection procedure is the same for all USB devices.

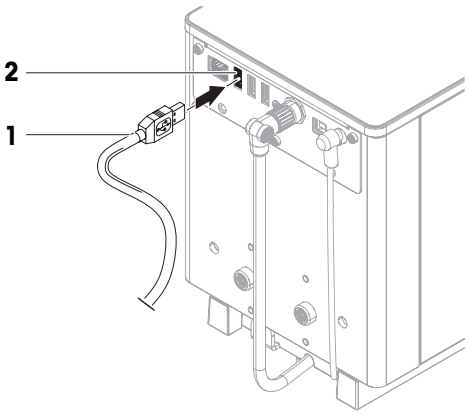
NOTICE

Damage to the device from not following the instructions of the USB device's manual.

– To use the USB device, consult its User Manual.

- The USB cable is connected to the USB device.
- The main weighing screen is shown on the balance terminal.

1 Connect the USB cable (**1**) to one of the USB-A ports (**2**) of the balance.
   ⇨ The balance detects the USB device automatically and the dialog **Add device** with a message, e.g., "System has found a device of type: XXX" appears.
2 Set a name for the USB device, then tap → **Next**.
   ⇨ The message "The connection to the device is configured and is now ready to use" appears.
3 Tap ✓ **OK** to close the dialog.
   ⇨ The USB device is connected and saved to the system.



For more information on using the USB device, see Devices / Printer settings.

See also

Devices / Printers ▸ Page 70

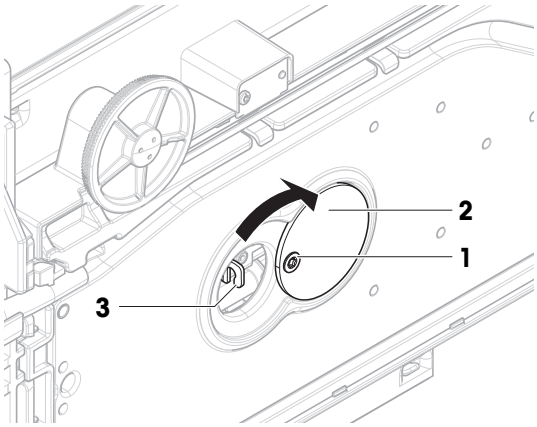
4.9 Weighing below the balance

Your balance is equipped with a weighing hook for performing weighing operations below the work surface (weighing below the balance).

- A weighing table or workbench is available, through which the weighing hook can be accessed.

1 Disconnect the balance from the AC/DC adapter.
2 Disconnect all interface cables.
3 Carefully tilt the balance to its side.
4 Loosen the screw (**1**) of the weighing hook cover (**2**).
   ⇨ The hook (**3**) is accessible.
5 Rotate the cover 90°.
6 Tighten the screw to secure the cover.
7 Carefully put the balance back on its feet.
8 Reconnect the AC/DC adapter and the interface cables.

⇨ The weighing hook is accessible and can be used for below-the-balance weighing.



See also

Dimensions ▸ Page 137

5 Operation

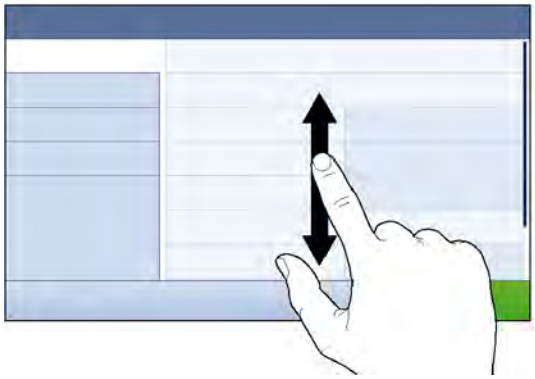
5.1 Touch screen

5.1.1 Selecting or activating an item

– Tap the item or function to be selected or activated.

5.1.2 Scrolling

– Move the list up/down.

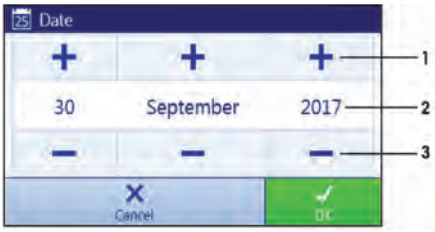


5.1.3 Entering characters and numbers

When tapping on fields that require letters, numbers, or special characters, a keyboard appears on the display.

	Name	Description
1	Input field	Shows the data that has been entered.
2	Delete	Deletes the character left of the current curser position. The curser can be positioned by using the touch screen.
3	Confirm	Confirms the entered data.
4	Discard	Closes the keyboard dialog.
5	Numbers and special characters	Switches into the special character mode.
6	Shift	Switches between lower or upper case letters.

5.1.4 Changing the date and time



	Name	Explanation
1	Plus button	Increment
2	Display field	Shows the defined time or date.
3	Minus button	Decrement

Note

The format of date and time can be defined in the settings via the options **Date format** and **Time format**.

See also

Date / Time / Language / Format ▸ Page 67

5.2 Methods

A weighing method is an application for carrying out specific weighing tasks. The balance offers the method "General Weighing" with default parameters. You have the possibility to create a maximum of 50 methods and edit the methods. You can use these methods for your weighing task or edit them according to your requirements. Methods can also be deleted or cloned.

To support you while configuring new methods, a configuration wizard leads you through the whole process.

5.2.1 Methods overview

The section **Methods list** provides an overview of all methods already created on the balance. In this section, new methods can be defined and existing methods can be edited, cloned or deleted. It is also the starting point for using any method in a weighing procedure.

Navigation: Methods > Methods list

The following methods are available:

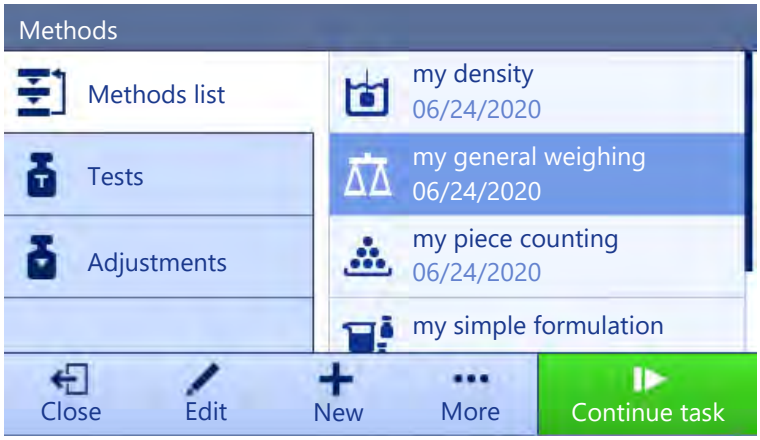
- **General weighing** (see [Method "General weighing" ▸ Page 36])
- **Simple formulation** (see [Method "Simple formulation" ▸ Page 38])
- **Piece Counting** (see [Method "Piece counting" ▸ Page 40])
- **Titration** (see [Method "Titration" ▸ Page 41])
- **Density determination** (see [Method "Density determination" ▸ Page 42])

5.2.2 Method "General weighing"

The method **General weighing** offers the basic weighing functions (zeroing, taring, weighing). The method is used for simple weighing tasks or to perform a series of check weighing or dosing.

The parameters of the weighing item, e.g., sample ID and target weight, can either be entered manually or by using a template. Therefore two different methods exist:

- **General weighing**: Select this method if you want to work without pre-defined templates.
- **General weighing with templates**: Select this method if you want to use a template to define the parameters individually for each single weighing item. Templates are particularly useful when the weighing task consists of a series of weighings, each with its own individual parameters, such as target weight, tolerances, etc. For further information, see [Using method templates ▸ Page 45].



You have the possibility to start with method factory setting parameter or to create a new method with changed method parameter.

For details about method settings:

See also

Settings: method "General weighing" ▸ Page 72

5.2.2.1 Creating a method "General weighing"

Navigation: Methods > Methods list

1 Tap **+ New** in the action bar.
   ⇨ The method wizard opens, starting at **1. Method type**.
2 Tap **Method type** and select the method type **General weighing** or **General weighing with templates**.
3 Tap **→ Next**.
   ⇨ The method wizard opens the section **2. Identification**.
4 Define the **Method name** and **Result description** and tap **→ Next**.
   ⇨ The method wizard opens the section **3. Configuration**.
5 Select a **Tolerance profile** and tap **→ Next**.
   ⇨ The method wizard opens the section **4. Save**.
   ⇨ When selected **General weighing with templates**, the wizard opens the optional section **4. Templates**.
6 Select a template from the list and define the **Sample ID**, **Unit**, **Target weight**, **-tolerance**, and **+tolerance**. Tap **→ Next**.
   ⇨ The method wizard opens the section **5. Save**.
7 Tap **✓ Finish** to save the new method .

⇨ The method has been created and appears in the list.

5.2.2.2 Performing a "General weighing"

This section describes a **General weighing** example step by step. Depending on the defined settings and weighing objects, the procedure can be different from this example.

1 Open the **Methods** section.
2 Select a method from the **Methods list** or define a new method.
3 Tap **▶ Start method**.
   ⇨ The main weighing screen appears with the selected method.
4 Press →0← to zero the balance.

5 Open the door and place the weighing object (1) on the weighing pan (2).

6 Close the door and wait until the weight stabilizes.

⇨ The weighing starts with **Capturing weight...**.

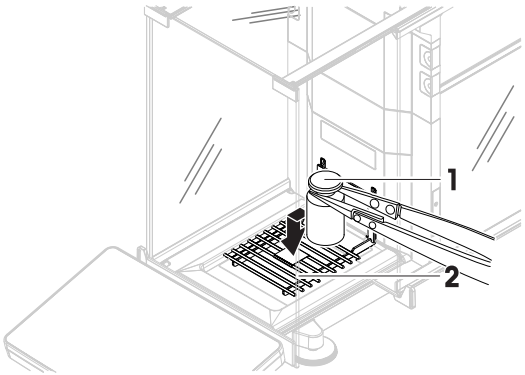
7 Tap **+ Add to protocol**.

⇨ The weighing result is saved to the **Protocol**.

8 When the weighing process is finished, tap **Complete** in the action bar.

⇨ The window **Complete task** opens. The task-specific information can be printed on a label printer. The **Protocol** can be printed manually or automatically (depending on the method settings).

⇨ The task **General weighing** was successfully completed.



Note

It is possible to exclude a weighing results from the protocol by opening the **Protocol** and tapping on **Exclude result**.

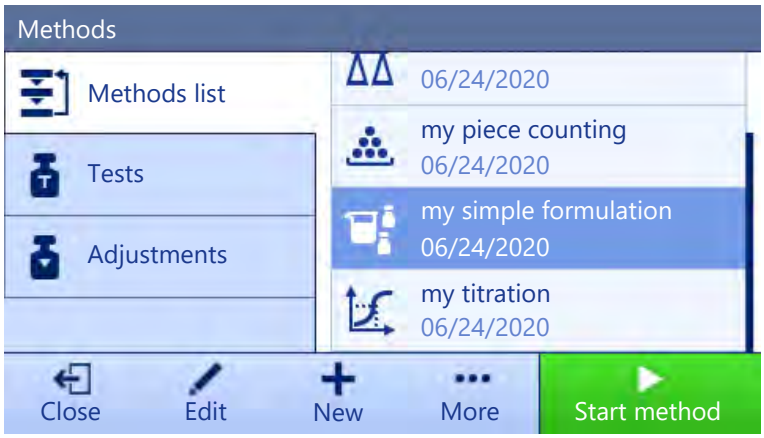
The window **Complete task** always appears after completing the task, even if the results are saved automatically.

5.2.3 Method "Simple formulation"

With the method **Simple formulation** the concentration of a substance can automatically be calculated.

The parameters of the weighing item, e.g., sample ID and target weight, can either be entered manually or by using a template. Therefore two different methods exist:

- **Simple formulation**: Select this method if you want to weigh a single component in a volumetric flask and have the concentration calculated automatically.
- **Simple formulation with templates**: Select this method if you want to follow a predefined solution recipe of one or several components. Templates are particularly useful when the weighing task consists of a series of weighings, each with its own individual parameters, such as target weight, tolerances, etc. For further information, see [Using method templates ▸ Page 45].



For details about method settings:

See also

Settings: method "Simple formulation" ▸ Page 82

5.2.3.1 Creating a method "Simple formulation"

Navigation: Methods > Methods list

1 Tap **+ New** in the action bar.

⇨ The method wizard opens, starting at **1. Method type**.

2 Tap **Method type** and select the method type **Simple formulation** or **Simple formulation with templates**.

3 Tap → **Next**.

⇨ The method wizard opens the section **2. Identification**.

4 Define the **Method name** and **Result description** and tap → **Next**.

⇨ The method wizard opens the section **3. Configuration**.

5 Select the options for **Calculate concentration per component**, **Calculate amount of component** and set a **Tolerance profile**.

6 Tap → **Next**.

⇨ The method wizard opens the section **4. Save**.

⇨ When selected **Simple formulation with templates**, the wizard opens the optional creating section **4. Templates**.

7 Select a template from the list and define the **Sample ID**, **Unit**, **Target weight**, **-tolerance**, and **+tolerance**. Tap → **Next**.

⇨ The method wizard opens the section **5. Save**.

8 Tap ✓ **Finish** to save the new method .

⇨ The method has been created and appears in the list.

5.2.3.2 Performing a "Simple formulation"

This example describes how to perform a simple formulation with two different components. It explains the basic functions of the method without the use of any templates. Advanced functions such as the calculation of the concentration of a component can be defined in the method settings.

1 Open the **Methods** section.

2 Select a method from the **Methods list** or define a new method.

3 Tap ▶ **Start method**.

⇨ The main weighing screen appears with the selected method.

4 Define the target weight and the tolerance limits for the first component.

5 Select **Component ID** to define the first component.

6 Select **Task ID** to define the whole task.

7 Press →0← to zero the balance.

8 Open the door and place the sample vessel on the weighing pan.

9 Press →T← to tare the balance.

10 Open the door and add the first component in the sample vessel.

⇨ The measurement starts.

11 Tap + **Add to protocol**.

⇨ The weighing result is saved to the **Protocol**.

12 Define the target weight and the tolerance limits for the second component.

13 Select **Component ID** to define the second component.

14 Open the door and add the second component in the sample vessel.

15 Tap + **Add to protocol**.

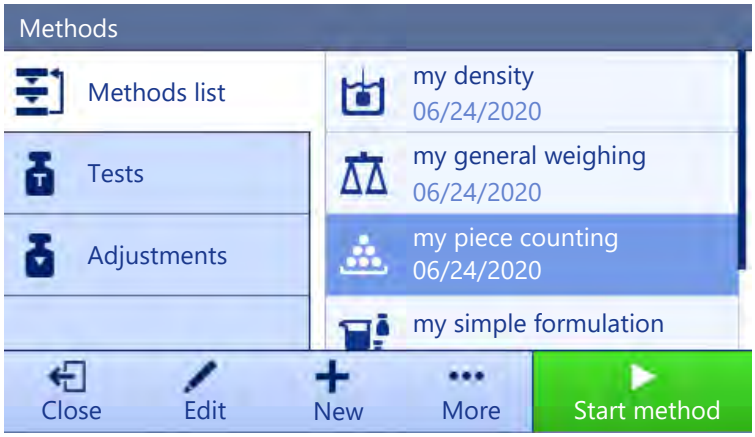
⇨ The weighing result is saved to the **Protocol**.

16 Tap 🖶 **Complete** and select if you want to print or export the task protocol.

⇨ The weight task is completed and the balance returns to the main weighing screen.

5.2.4 Method "Piece counting"

The method **Piece Counting** allows you to determine the number of pieces put on the weighing pan. It is advantageous if all pieces are of approximately equal weight, since the unit quantity is determined on the basis of the average weight of a single piece.



For details about method settings:

See also

Settings: method "Piece counting" ▸ Page 90

5.2.4.1 Creating a method "Piece counting"

Navigation: Methods > Methods list

1 Tap **New** in the action bar.
   ⇨ The method wizard opens, starting at **1. Method type**.
2 Tap **Method type** and select the method type **Piece Counting**.
3 Tap **→ Next**.
   ⇨ The method wizard opens the section **2. Identification**.
4 Define the **Method name** and **Result description** and tap **→ Next**.
   ⇨ The method wizard opens the section **3. Configuration**.
5 Select a **Tolerance profile** and tap **→ Next**.
   ⇨ The method wizard opens the section **4. Weighing item**.
6 Define a reference for pieces **Reference PCS**, a **Reference average weight**, **Target weight** and tap **→ Next**.
   ⇨ The method wizard opens the section **5. Save**.
7 Tap **✓ Finish** to save the new method .

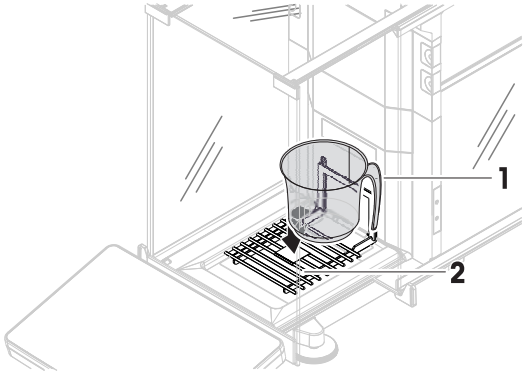
⇨ The method has been created and appears in the list.

5.2.4.2 Performing a "Piece counting"

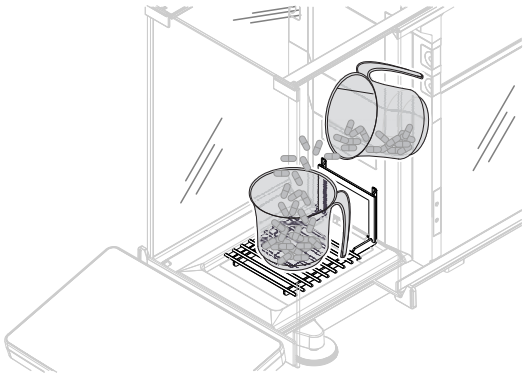
This section describes how the method **Piece Counting** is being used in a task example. In this example we are weighing pieces in a sample vessel.

1 Open the **Methods** section.
2 Select a method from the **Methods list** or define a new method.
3 Tap **▶ Start method**.
   ⇨ The main weighing screen with the selected method opens. The balance displays the defined target value, the tolerance and the current average weight of one piece.

4 Press →0← to zero the balance.
or
If a container is used, place the container (1) on the weighing pan (2) and press →T← to tare the balance.
⇨ The door closes automatically (depending on the door settings)
⇨ The tare-measurement starts with **Taring...**.
⇨ When taring is finished, the door opens automatically (depending on the door settings).



5 If not yet done, enter the average weight for a known number of pieces in the method settings. This serves as reference for the piece counting. Tap to capture the weight of the items on the weighing pan and use it as reference weight.
6 Place the pieces in the sample vessel.
7 Close the door and wait until the weight stabilizes.
8 Tap + **Add to protocol**.
⇨ The weighing result is saved to the **Protocol**.
9 When the weighing process is finished, tap **Complete** in the action bar.
⇨ The window **Complete task** opens. The task-specific information can be printed on a label printer. The **Protocol** can be printed manually or automatically (depending on the method settings).
⇨ The task **Piece Counting** was successfully completed.

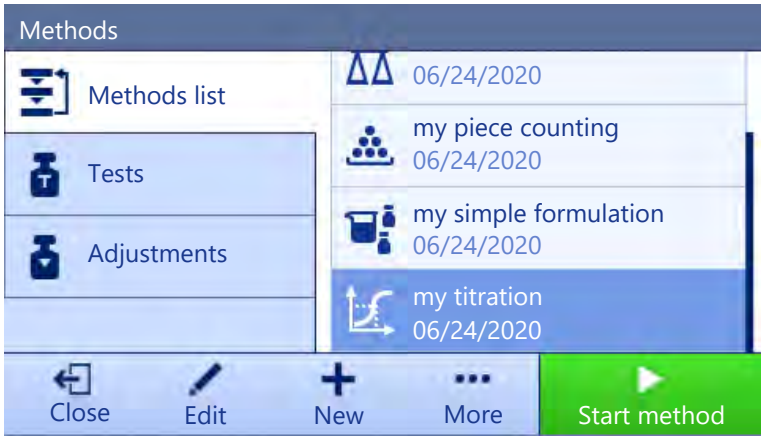


Note

It is possible to exclude a weighing results from the protocol by opening the **Protocol** and tapping on **Exclude result**.
The window **Complete task** always appears after completing the task, even if the results are saved automatically.

5.2.5 Method "Titration"

The method **Titration** enables the interaction between the balance and the titrator via MT-SICS.



For details about method settings:

See also

Settings: method "Titration" ▸ Page 98

5.2.5.1 Creating a method "Titration"

Navigation: Methods > Methods list

1 Tap **+ New** in the action bar.
   ⇨ The method wizard opens, starting at **1. Method type**.
2 Tap **Method type** and select the method type **Titration**.
3 Tap **→ Next**.
   ⇨ The method wizard opens the section **2. Identification**.
4 Define the **Method name** and **Result description** and tap **→ Next**.
   ⇨ The method wizard opens the section **3. Configuration**.
5 Select a **RFID option**, a **Tolerance profile** and tap **→ Next**.
   ⇨ The method wizard opens the section **4. Save**.
6 Tap **✓ Finish** to save the new method .

⇨ The method has been created and appears in the list.

5.2.5.2 Performing a "Titration"

This example describes how to prepare a sample for titration and to transfer the information to the METTLER TOLEDO titrator via a USB connection. For more information about how to perform the titration, consult the manual of the titrator.

- A METTLER TOLEDO titrator is connected to the balance via USB.
- A titration method exists in the **Methods list**.

1 Open the **Methods** section.
2 Select the desired titration method from the **Methods list**.
3 Tap **▶ Start method**.
   ⇨ The main weighing screen appears with the selected method.
4 Press **→0←** to zero the balance.
5 Open the door and place the sample vessel on the weighing pan.
6 Close the door and wait until the weight stabilizes.
7 Press **→T←** to tare the balance.
8 Open the door and place the sample in the sample vessel.
9 Close the door and wait until the weight stabilizes.
10 Tap **✓ OK** to accept the measurement.
   ⇨ The weighing result is saved to the **Protocol** and automatically sent to the titrator.
11 Continue your workflow on the titrator.

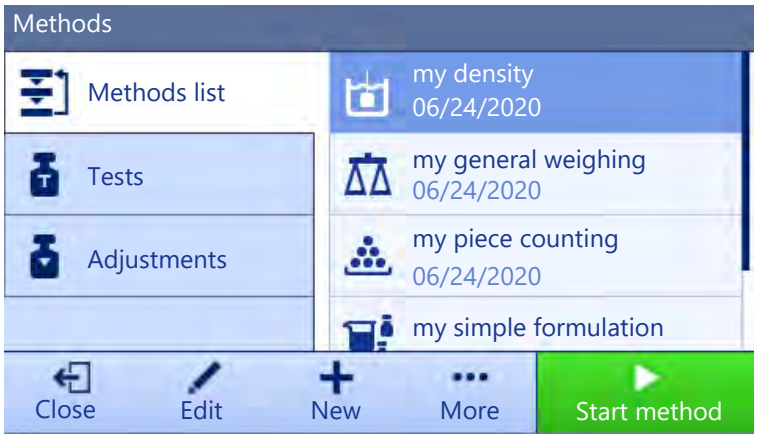
5.2.6 Method "Density determination"

The method **Density determination** is used for determining the density of solids and liquids. Density determination is carried out based on **Archimedes' principle** according to which a body immersed in a fluid undergoes an apparent loss in weight that is equal to the weight of the fluid it displaces. Furthermore the density method also supports the pycnometer method, which does not rely on **Archimedes' principle**. The method **Density determination** includes three method types:

Solid: determines the density of a solid with the help of a density kit

Liquid (sinker): determines the density of a liquid with the help of a density kit and a sinker

Liquid (pycnometer): determines the density of a liquid in a glass vessel, e.g. pycnometer



For details about method settings:

See also

Settings: method "Density determination" ▸ Page 106

5.2.6.1 Creating a method "Density determination"

Navigation: Methods > Methods list

1 Tap **New** in the action bar.
   ⇨ The method wizard opens, starting at **1. Method type**.
2 Tap **Method type** and select the method type **Density**.
3 Tap **Next**.
   ⇨ The method wizard opens the next creating section **2. Identification**.
4 Define the **Method name** and **Result description** and tap **Next**.
   ⇨ The method wizard opens the section **3. Configuration**.
5 Select the **Determination type** and define the corresponding settings, e.g., **Density unit** and **Weighing settings**.
6 Tap **Next**.
   ⇨ The method wizard opens the section **4. Weighing item**
7 Define **Initial values for weighing** and tap **Next**.
   ⇨ The method wizard opens the last section **5. Save**.
8 Tap **Finish** to save the new method .

⇨ The method has been created and appears in the list.

Note

The **Determination type** can only be selected as part of a new created method. If another **Determination type** (solid, liquid) is required, a new method must be created.

5.2.6.2 Performing a "Density determination"

This example describes how to determine the density of a solid using a density kit.

- A density kit is available for the balance.

1 Open the **Methods** section.
2 Select a method from the **Methods list** or define a new method.
3 Tap **Start method**.
   ⇨ The main weighing screen appears with the selected method.
4 Tap **Start**.

5 Specify the **Temperature** and the **Aux. liquid**.
6 Tap ✓ **OK**.
7 Follow the instructions from the wizard.
⇨ The **Protocol** opens and shows a summary of the weighing results.
8 Tap **Complete** to open the printing options.
⇨ The dialog **Complete task** appears.
9 Tap ✓ **Complete**.
⇨ The task **Density determination** was successfully completed.

5.2.7 Editing a method

To clone a method proceed as follows:
1 Open the **Methods** section.
2 Select the method that you want to edit.
⇨ The line color of the selected method becomes blue.
3 Tap **Edit**.
For details about method settings:

See also
Weighing methods settings ▸ Page 72

5.2.8 Cloning a method

To simplify the process to create a method, an existing method can be cloned one or several times. The cloned method will have the same parameter values as the original one. If weighing item templates exist, those will be cloned as well.

1 Open the **Methods** section.
2 Tap the method that you want to clone.
⇨ The line color of the selected method becomes blue.
3 Tap ••• **More** and tap **Clone**.
⇨ A copy of the selected method appears in the list. The cloned method has the same settings as the original method.

Note
A method can be cloned several times. The name of the cloned method is always based on its original name, to which is appended a number.

5.2.9 Deleting a method

Both factory defined methods and user defined methods can be deleted if they are not needed. For this purpose proceed as follows:

1 Open the **Methods** section.
2 Tap the method that you want to delete.
⇨ The line color of the selected method becomes blue.
3 Tap ••• **More**.
4 Tap **Delete**.
⇨ The message **Delete method and cancel tasks?** appears on the screen.
5 Tap ✓ **OK** to delete the selected method.
⇨ The system returns to the method list. The method has been deleted and does not appear on the list anymore.

Note

There is always a method activated in the background. This method can not be directly deleted. To delete the method, another method must be started instead. Now the method is not activated anymore and can be deleted.

5.2.10 Using method templates

Working with templates can simplify the workflow, especially when several weighings with different predefined target weights have to be carried out one after the other. Characteristic information such as a target weight and tolerances can be defined in a template and must not be defined for every single weighing task. This may save time, especially when the weighing process consists of multiple steps.

The methods **General weighing with templates** and **Simple formulation with templates** use templates.

Before a template can be used in the weighing process, it must be defined. There are two ways to define templates:

- The templates can be defined directly in the method creating process.
- The templates can be defined during the execution of a task within a method of the same type, without templates.

5.2.10.1 Defining a template during the method-defining process

This example describes how to define a template for the method **General weighing with templates**.

1 Open the **Methods** section.
2 Tap **+ New method**.
3 Select **Method type General weighing with templates**.
4 Step through the method wizard until step **4. Templates**.
⇨ The dialog screen **4. Templates** appears, the sample 1 can be defined.
5 Tap **Unit** to select the template unit.
6 Tap **Target weight** to define the target weight.
⇨ The options **-tolerance** and **+tolerance** appear.
7 Tap **-tolerance** to define the lower tolerance.
8 Tap **+tolerance** to define the upper tolerance.
9 Tap **→ Next**.
10 Tap **Finish**.
⇨ The method has been created and appears in the method list.

Note

This example only describes how to create templates for the method **General weighing with templates**. For the other methods there might be several other options that can be defined.

5.2.10.2 Defining a template in a current task

It is also possible to create templates while performing a method without predefined templates, providing that the method type allows it.. This example describes how to create templates for the method **General weighing**, respectively for the method **General weighing with templates**. Templales can also be used for **Simple formulation** methods.

1 Start a method **General weighing**.
2 Perform three weighings and add the results to the protocol by tapping **+ Add to protocol**.
⇨ The results are saved to the **Protocol**.
3 Tap **••• More**.
4 Tap **Save as method with templates**.
5 Define a **Method name**.

6 Tap ✓ **OK**.

⇨ A method **General weighing with templates** including three templates is created and added to the **Methods list** with the name defined by the user.

5.2.10.3 Working with templates

After the template has been created within a method, it can be used in a task.

1 Open the **Methods** section.

2 Select a method from the **Methods list** or define a new method.

3 Tap ▶ **Start method**.

⇨ The main weighing screen opens. The target weight and the tolerance limits that have been defined in the template appear.

5.3 Test weights

5.3.1 Defining an individual test weight

The user should enter data related to each test weight based on the corresponding certificate. This enables each external test weight to be clearly assigned to a specific certificate. Up to 12 external test weights can be configured. These test weights can be used to carry out external tests and adjustments.

Navigation: Methods > Tests > Test weights

Note

An external test weight for an external adjustment has to weigh at least 10% of the balance capacity. External test weights under 10% of the balance capacity are not displayed on the balance.

- The dialog **Test weights** is open.

1 Tap + **Test weight**.

2 Define the test weight settings and confirm with ✓ **Finish**.

⇨ The test weight is defined and will be available later in the test procedure.

5.3.2 Defining a combined test weight

The user can combine test weights to achieve a test weight capacity that is not available as a single standard weight. For example, a weight of 10 g and a weight of 20 g can be combined and used as a test weight of 30 g. Each combined test weight can include two or three test weights. The class of a specific combined weight can only be as good as the worst class of the individual test weights it contains. As for any other test weight, combined test weight can be used to carry out external tests and adjustments.

Navigation: Methods > Tests > Test weights

- The dialog **Test weights** is open.
- At least two individual test weights are defined.

1 Tap **Combined weight**.

2 Enter a **Test weight name**.

3 Select the **Minimal weight class** for the combined weight.

4 Tap **Weights**

⇨ The individual weights of at least **Minimal weight class** are shown.

5 Select the weights to include in the combined weight.

6 Tap ✓ **OK**.

⇨ The **Nominal weight** is calculated as the sum of the selected individual weights.

7 Tap ✓ **Save**.

⇨ The combined test weight is defined and will be available later in the test procedure.

5.4 Tests

Routine tests can be performed to ensure accurate weighing results according to GWP® or other QM systems. Therefore the tests should be performed in fixed, regular intervals depending on your QM system and the results should be documented in a traceable way.

Navigation: Methods > Tests

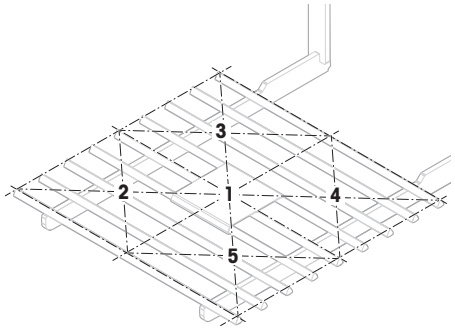
5.4.1 Overview routine tests

METTLER TOLEDO can help you to define the routine tests to be performed based on your process requirements. Please contact your local METTLER TOLEDO representative for additional information.

5.4.1.1 Eccentricity test

The purpose of the eccentricity test is to check if every eccentric load deviation (corner load deviation) is within the user SOP tolerances. The corner load is the deviation of the measurement value through off-center (eccentric) loading. The corner load increases with the weight of the load and its distance from the center of the weighing pan support. If the display remains consistent, even when the same load is placed on different parts of the weighing pan, the balance does not have corner load deviation.

The result corresponds to the highest of the four determined eccentric load deviations (2 to 5).



5.4.1.2 Repeatability test

The repeatability test calculates the standard deviation of a series of measurements with a single test weight in order to determine the repeatability of the balance.

Repeatability is a measure of the ability of a balance to supply the same result in repetitive weighings with one and the same load under the same measurement conditions. During the test, the same load is placed and measured in different parts of the weighing pan. Afterwards, the difference between the measured weight values is calculated. The spread of the measured results leads to the repeatability.

Repeatability is highly affected by the ambient conditions (drafts, temperature fluctuations and vibrations) and also by the skill of the person performing the weighing. Therefore, the series of measurements must be carried out by the same operator, in the same location, under constant ambient conditions and without interruption.

The following test types are available:

- **Repeatab. - 1 TP**: To test repeatability of the balance without tare weight.
- **Repeatab. - Tare - 1 TP**: To test repeatability of the balance with tare weight. The first test weight (tare weight) is used to simulate a tare container.

5.4.1.3 Sensitivity test

The sensitivity of the balance defines the deviation between the balance reading and the actual load. The sensitivity test allows you to measure the sensitivity using one or two test points.

The following test types are available:

- **Sensitivity - 1 TP**: To test sensitivity of the balance with one test weight.
- **Sensitivity - 2 TP**: To test sensitivity of the balance with two test weights.
- **Sensitivity - Tare - 1 TP**: To test sensitivity of the balance with two test weights. The first test weight (tare weight) is used to simulate a tare container.
- **Sensitivity - Tare - 2 TP**: To test sensitivity of the balance with three test weights. The first test weight (tare weight) is used to simulate a tare container.

5.4.2 Creating a new test

Before a test can be performed, the test settings have to be defined. A test wizard is leading you step-by-step through the process.

1 Open the **Methods** section.
2 Tap **Tests**.
3 Tap **New**.
   ⇨ The wizard **Create new test** starts.
4 Select the test type.
5 Work through the process by using the button → **Next** to go to the next step or the button ← **Back** to go back to the previous step.

For details about test settings:

See also

Tests settings ▸ Page 113

5.4.3 Performing a test

NOTICE

Measurement errors due to deficient handling of the test weights.

Deficient handling of the test weights can lead to incorrect result.

– Only handle test weights with gloves or forks.

You can perform an eccentricity test, a repeatability test or a sensitivity test. Which test you have to perform and when depends on the respective weighing processes. Mettler-Toledo GmbH can help you to define the routine tests to be performed based on your process requirements. Please contact your local METTLER TOLEDO representative for additional information.

Moments when tests could be performed:

- After cleaning
- After a software update
- Daily before putting into operation
- Depending on own SOP

Requirements:

- At least one test weight is defined.
- At least one sensitivity, one repeatability or one eccentricity test is created.

All of the following pictured test weights or vessels are examples. Actual test weights or vessels may look different.

See also

Defining an individual test weight ▸ Page 46
Defining a combined test weight ▸ Page 46
Tests settings ▸ Page 113

5.4.3.1 Performing an eccentricity test

1 Open the **Methods** section.
2 Tap **Tests**.
   ⇨ The test(s) previously defined appear on the list.
3 Select the eccentricity test you wish to perform and tap ▶ **Start**.
   ⇨ The test sequence starts.

4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.

5 When all requirements are fulfilled tap ✓ **OK**.

6 Make sure that the weighing pan is empty and tap ✓**OK**.

⇨ The door closes automatically (depending on the door settings) and the balance starts an automatic zeroing.

7 Choose an available test weight
- or -
add a new test weight and tap ✓**OK**.

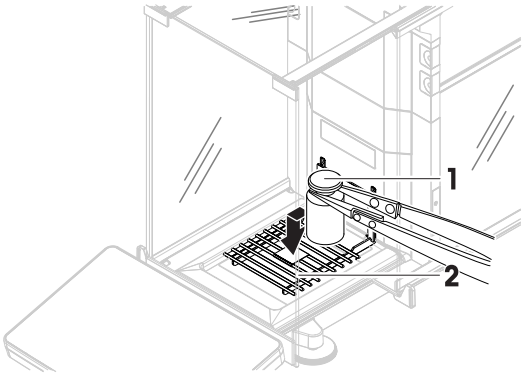
8 Open the door and place the test weight (1) carefully in position 1, in the middle of the weighing pan (2).

⇨ The measurement starts with **Capturing weight...**

⇨ The door closes automatically (depending on the door settings).

⇨ When the measurement is finished, the door opens automatically (depending on the door settings).

⇨ The result of the first measurement is placed in the **Protocol** as **Position 1**.



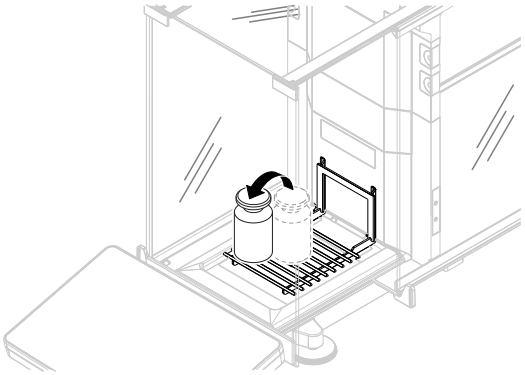
9 Lift the test weight and move to position 2 (front left corner of the weighing pan).

⇨ The measurement starts with **Capturing weight...**

⇨ The door closes automatically (depending on the door settings).

⇨ When the measurement is finished, the door opens automatically (depending on the door settings).

⇨ The result of the second measurement is placed in the **Protocol** as **Position 2**.



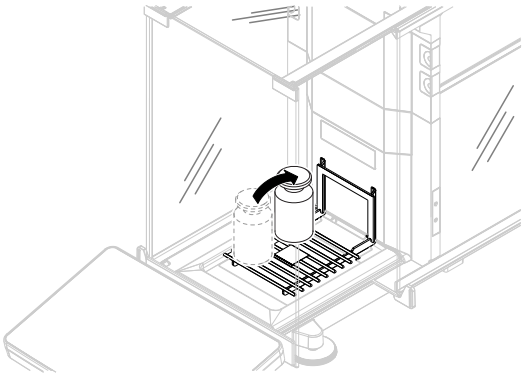
10 Lift the test weight and move to position 3 (back left corner of the weighing pan).

⇨ The measurement starts with **Capturing weight...**

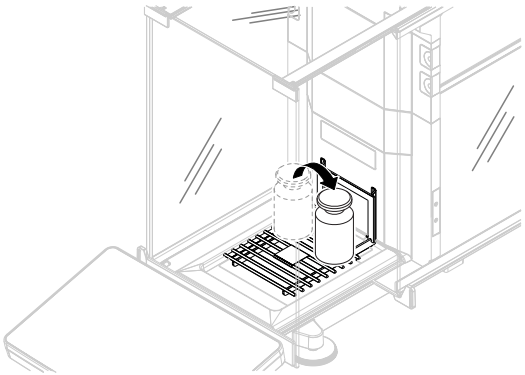
⇨ The door closes automatically (depending on the door settings).

⇨ When the measurement is finished, the door opens automatically (depending on the door settings).

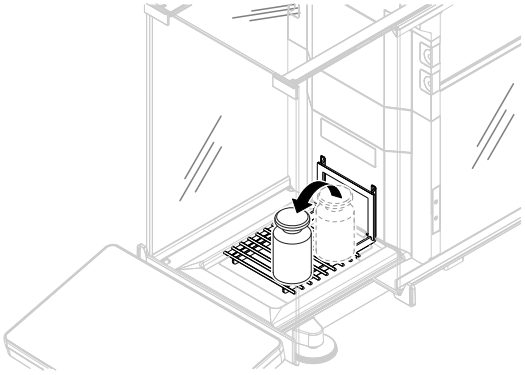
⇨ The result of the third measurement is placed in the **Protocol** as **Position 3**.



11 Lift the test weight and move to position 4 (back right corner of the weighing pan).
   ⇨ The measurement starts with **Capturing weight...**
   ⇨ The door closes automatically (depending on the door settings).
   ⇨ When the measurement is finished, the door opens automatically (depending on the door settings).
   ⇨ The result of the fourth measurement is placed in the **Protocol** as **Position 4**.



12 Lift the test weight and move to position 5 (front right corner of the weighing pan).
   ⇨ The measurement starts with **Capturing weight...**
   ⇨ The door closes automatically (depending on the door settings).
   ⇨ When the measurement is finished, the door opens automatically (depending on the door settings).
   ⇨ The result of the fifth measurement is placed in the **Protocol** as **Position 5**.
   ⇨ The eccentricity test is finished.



13 Remove the test weight carefully and tap ✓ **OK**
   ⇨ The door closes automatically (depending on the door settings) and the balance starts an automatic zeroing.
14 When the test procedure is finished, tap **Finish**.
   ⇨ The result dialog opens.
15 To print the results tap **Print**, to finish the test tap ✓ **Finish**.

Test result

If the test failed, see "Troubleshooting", search the error, remedy it and test again. If the test fails again, contact a METTLER TOLEDO representative.

See also

Troubleshooting ▸ Page 129

5.4.3.2 Performing a repeatability test

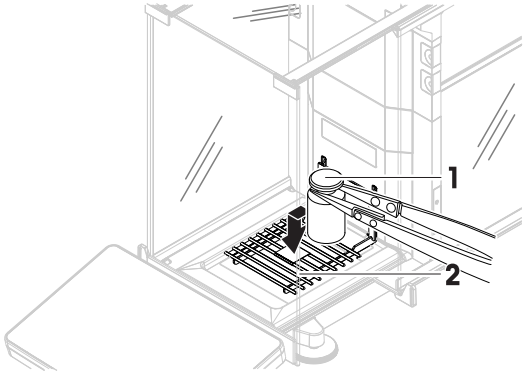
In this section, both repeatability tests are described. Which test you use depends on the respective test target.

Repeatability - 1 test point

1 Open the **Methods** section.
2 Tap **Tests**.
   ⇨ The test(s) previously defined appear on the list.
3 Select the repeatability test you wish to perform and tap ▶ **Start**.
   ⇨ The test sequence starts.
4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.
5 When all requirements are fulfilled tap ✓ **OK**.
6 Make sure that the weighing pan is empty and tap ✓**OK**.
   ⇨ The door closes automatically (depending on the door settings) and the balance starts an automatic zeroing.

7 Choose an available test weight
- or -
add a new test weight and tap ✓**OK**.

8 Open the door and place the test weight (1) carefully on the weighing pan (2).



⇨ The measurement starts with **Capturing weight...**

⇨ The door closes automatically (depending on the door settings).

⇨ When the measurement is finished, the door opens automatically (depending on the door settings).

⇨ The result of the measurement is saved to the **Protocol**.

9 Remove the test weight carefully and tap ✓ **OK**

⇨ The door closes automatically (depending on the door settings) and the balance starts an automatic zeroing.

⇨ Depending on the specified **Number of repetitions** you have to repeat the last two steps a certain number of times.

10 When the test procedure is finished, tap **Finish**.

⇨ The result dialog opens.

11 To print the results tap **Print**, to finish the test tap ✓ **Finish**.

Repeatability - Tare - 1 test point

1 Open the **Methods** section.

2 Tap **Tests**.

⇨ The test(s) previously defined appear on the list.

3 Select the repeatability test you wish to perform and tap ▶ **Start**.

⇨ The test sequence starts.

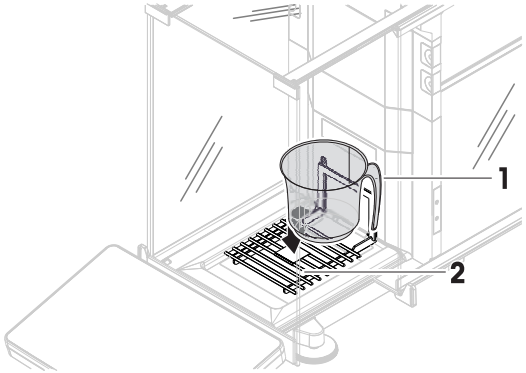
4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.

5 When all requirements are fulfilled tap ✓ **OK**.

6 Make sure that the weighing pan is empty and tap ✓**OK**.

⇨ The door closes automatically (depending on the door settings) and the balance starts an automatic zeroing.

7 Choose an available test weight/test container
- or -
add a new test weight/test container (1) and tap ✓ **OK** and put it on the weighing pan (2).

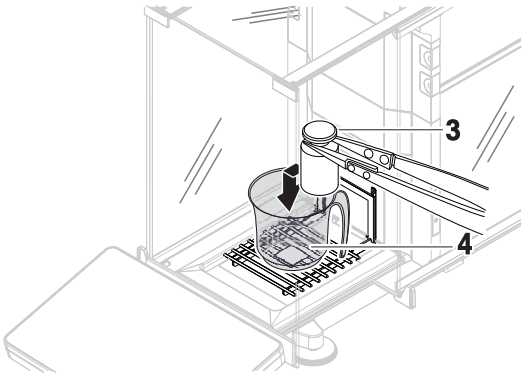


⇨ The door closes automatically (depending on the door settings) and the measurement starts with **Taring...**.

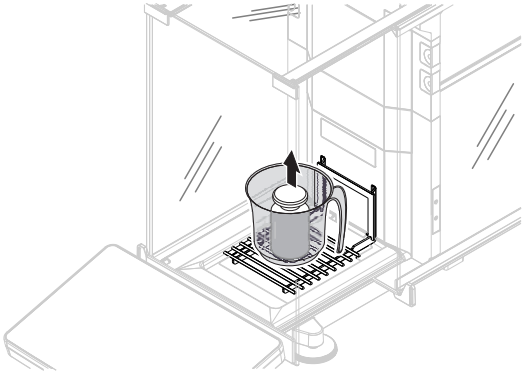
⇨ When the tare is finished, the door opens automatically (depending on the door settings).

⇨ The tare result is saved in the **Protocol**.

8 Carefully place the test weight (3) onto the weighing pan or into the tare container (4).
   ⇨ The measurement starts with **Capturing weight...**
   ⇨ The door closes automatically (depending on the door settings).
   ⇨ When the measurement is finished, the door opens automatically (depending on the door settings).
   ⇨ The result of the measurement is saved to the **Protocol**.



9 Remove the test weight, leave the container on the weighing pan.
   ⇨ The door closes automatically (depending on the door settings) and the measurement starts with **Taring...**.
   ⇨ When the tare is finished, the door opens automatically (depending on the door settings).
   ⇨ The tare result is saved in the **Protocol**.



10 Carefully place the test weight (3) onto the weighing pan or into the tare container (4).
   ⇨ The measurement starts with **Capturing weight...**
   ⇨ The door closes automatically (depending on the door settings).
   ⇨ When the measurement is finished, the door opens automatically (depending on the door settings).
   ⇨ The result of the measurement is saved to the **Protocol**.
   ⇨ Depending on the specified **Number of repetitions** you have to repeat the last two steps a certain number of times.
11 When the test procedure is finished, tap **Finish**.
   ⇨ The result dialog opens.
12 To print the results tap **Print**, to finish the test tap ✓ **Finish**.

Test result

If the test failed, see "Troubleshooting", search the error, remedy it and test again. If the test fails again, contact a METTLER TOLEDO representative.

See also

Troubleshooting ▸ Page 129

5.4.3.3 Performing a sensitivity test

In this section, two of four possible sensitivity tests are described. Which test you use depends on the respective test target. The procedure for the tests with two test points is similar, but additional test weights and test containers are necessary.

Sensitivity - 1 test point

1 Open the **Methods** section.
2 Tap **Tests**.
   ⇨ The test(s) previously defined appear on the list.
3 Select the sensitivity test you wish to perform and tap ▶ **Start**.
   ⇨ The test sequence starts.

4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.

5 When all requirements are fulfilled tap ✓ **OK**.

6 Make sure that the weighing pan is empty and tap ✓**OK**.

⇨ The door closes automatically (depending on the door settings) and the balance starts an automatic zeroing.

7 Choose an available test weight
- or -
add a new test weight and tap ✓**OK**.

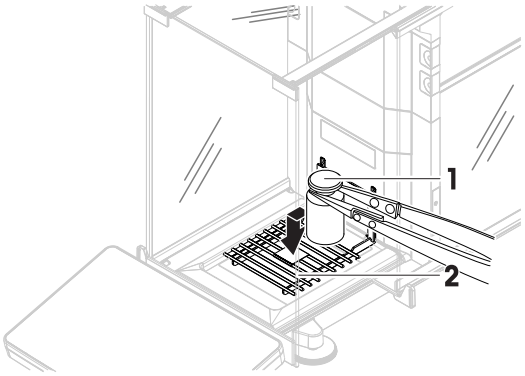
8 Open the door and place the test weight (1) carefully on the weighing pan (2).

⇨ The measurement starts with **Capturing weight...**

⇨ The door closes automatically (depending on the door settings).

⇨ When the measurement is finished, the door opens automatically (depending on the door settings).

⇨ The result of the measurement is saved to the **Protocol**.



9 When the test procedure is finished, tap **Finish**.

⇨ The result dialog opens.

10 To print the results tap **Print**, to finish the test tap ✓ **Finish**.

Sensitivity - Tare - 1 test point

1 Open the **Methods** section.

2 Tap **Tests**.

⇨ The test(s) previously defined appear on the list.

3 Select the sensitivity test you wish to perform and tap ▶ **Start**.

⇨ The test sequence starts.

4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.

5 When all requirements are fulfilled tap ✓ **OK**.

6 Make sure that the weighing pan is empty and tap ✓**OK**.

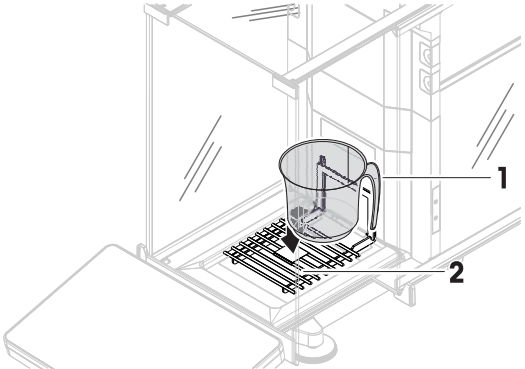
⇨ The door closes automatically (depending on the door settings) and the balance starts an automatic zeroing.

7 Choose an available test weight/test container
- or -
add a new test weight/test container (1) and tap ✓ **OK** and put it on the weighing pan (2).

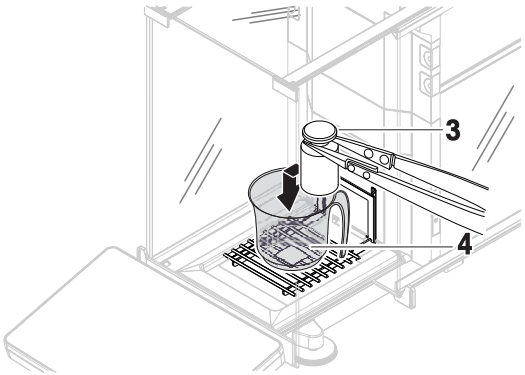
⇨ The door closes automatically (depending on the door settings) and the measurement starts with **Taring...**.

⇨ When the tare is finished, the door opens automatically (depending on the door settings).

⇨ The tare result is saved in the **Protocol**.



8 Carefully place the test weight (3) onto the weighing pan or into the tare container (4).
   ⇨ The measurement starts with **Capturing weight...**
   ⇨ The door closes automatically (depending on the door settings).
   ⇨ When the measurement is finished, the door opens automatically (depending on the door settings).
   ⇨ The result of the measurement is saved to the **Protocol**.
9 When the test procedure is finished, tap **Finish**.
   ⇨ The result dialog opens.



10 To print the results tap **Print**, to finish the test tap **Finish**.

Test result

If the test failed, see "Troubleshooting", search the error, remedy it and test again. If the test fails again, contact a METTLER TOLEDO representative.

See also

Troubleshooting ▸ Page 129

5.4.4 Editing a test

Navigation: Methods > Tests

1 Select the test to be edited from the list and tap **Edit**.
   ⇨ The test settings open.
2 Edit the test settings.

See also

Tests settings ▸ Page 113

5.4.5 Printing test results

You can print a test manually, whether the parameter **Automatic print** in the test settings is activated or deactivated. For this purpose proceed as follows:

1 Open the **Methods** section.
2 Tap **Tests**.
   ⇨ The test list opens.
3 Select the test to print and tap **••• More** and tap **Print all**

⇨ The test is printed.

5.4.6 Deleting a test

Running tests are labeled with the symbol and cannot be deleted. To delete a test, it must be finished or another test must be activated. To delete a test, proceed as follows:

1 Open the **Methods** section.
2 Tap **Tests**.
   ⇨ The test list opens.
3 Select the test to delete.
4 Tap **••• More** and tap **Delete**.
   ⇨ The section **Delete routine test** opens. The message **Do you really want to delete the selected routine test?** appears.

5 Tap ✓ **Yes** to delete the test. Tap ✕ **No** to cancel the deleting process.

⇨ After deleting the test, the system returns to the test list. The test has been deleted and does not appear on the list anymore.

5.4.7 Consulting the test history

Navigation: ⚙ Balance menu > History > Tests

– Select a test.

⇨ The test history opens. Specific data are displayed for each test, such as the date and time, type of test, temperature, level state, test weight ID, and weight deviation.

See also

History ▸ Page 61

5.5 Adjustments

This section describes how internal and external adjustments can be defined and performed. Which type of adjustment is performed depends on the defined adjustment **Strategy**.

Navigation: Methods > Adjustments

5.5.1 Internal adjustment

5.5.1.1 Editing an internal adjustment

1 Open the **Methods** section.

2 Tap **Adjustments**.

3 Tap **Edit**.

4 Set the **Strategy** to **Internal adjustment**.

5 Define the adjustment parameters.

6 Tap ✓ **Save**.

⇨ Your internal adjustment has been edited.

For details about adjustment settings:

See also

Adjustments settings ▸ Page 122

5.5.1.2 Performing an internal adjustment

- The adjustment **Strategy** is set to **Internal adjustment**.

1 Open the **Methods** section, tap , select the adjustment, and tap ▶ **Start**
- or -
from the main weighing screen, tap ••• **More** and tap **Start adjustment**.

⇨ **Internal adjustment** is being executed.

⇨ When the adjustment has been completed, an overview of the adjustment results appears.

2 Tap **Print** if you want to print the results.

3 Tap ✓ **Finish adjustment**.

⇨ The balance is ready.

5.5.2 External adjustment

5.5.2.1 Editing an external adjustment

1 Open the **Methods** section.

2 Tap **Adjustments**.
3 Tap **Edit**.
4 Set the **Strategy** to **External adjustment**.
5 Tap **Test weights - Edit test weight**.
⇨ The dialog **Test weights - Edit test weight** opens.
6 Select a test weight from the list and tap **OK**
- or -
tap **Test weight** to define a new test weight.
7 Define the test weight settings and confirm with **OK**.
8 Tap **Save**.
⇨ Your external adjustment has been edited.

For details about adjustment settings:

See also

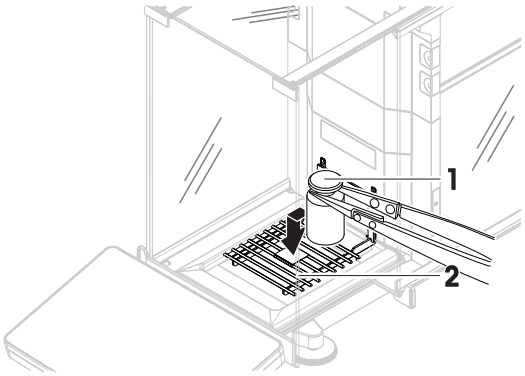
Adjustments settings ▸ Page 122

5.5.2.2 Performing an external adjustment

After the external weights have been defined, the function **External adjustment** can be performed.

- The adjustment **Strategy** is set to **External adjustment**.

1 Open the **Methods** section, tap , select the adjustment, and tap **Start**
- or -
from the main weighing screen, tap **More** and tap **Start adjustment**.
⇨ The adjustment process starts.
2 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.
3 When all requirements are fulfilled tap **OK**.
4 Make sure that the weighing pan is empty and tap **OK**.
5 Choose an available test weight
- or -
add a new test weight and tap **OK**.
6 Open the door and place the test weight (1) carefully on the weighing pan (2).
⇨ The door closes and the adjustment starts.
⇨ After a few seconds the door opens.
7 Remove the test weight from the weighing pan and tap **OK**.
⇨ The door closes and opens. The adjustment is finishing and the adjustment results appear.
8 To print the results tap **Print**, to finish the test tap **Finish**.



See also

Defining an individual test weight ▸ Page 46
Defining a combined test weight ▸ Page 46

5.5.3 Consulting the adjustment history

Navigation: Balance menu > History > Adjustments

– Select an adjustment.

⇨ The adjustment history opens. Specific data are displayed for each adjustment such as the date and time, type of adjustment, temperature, level state, adjustment trigger, and correction.

See also

History ▸ Page 61

5.6 External devices

Navigation: Balance menu > Settings > Devices / Printers

5.6.1 Adding a device

Adding a new device

1 To add a new device, tap ••• **More**, tap + **Add device**

⇨ The **Add device** dialog opens.

2 Connect the device to one of the USB-A ports of the balance.

3 Follow the instructions from the wizard.

Note

A label printer and a strip printer can be connected simultaneously to the balance. However, only one printer of a specific type can be active at any given time. When connecting a new printer or the same type, the printer of the same type that was previously active is deactivated automatically. After connecting a new printer, verify the status of all other printers.

Example: adding a barcode reader

1 To add a new device, tap ••• **More**, tap + **Add device**

⇨ The **Add device** dialog opens.

2 Connect the device to one of the USB-A ports of the balance.

3 If you are installing a barcode reader you can scan the barcode displayed on the balance terminal. Tap **Tools** and tap → **Next**.

⇨ The barcode of the device is shown.

4 Scan the barcode from the device.

⇨ The barcode is identified from the balance and the new device is connected.

5 To cancel the dialog, tap ✕ **Cancel**.

See also

Installing devices ▸ Page 31

5.6.2 Deleting a device

1 Select the device from the list of devices and printers.

2 Tap ••• **More** and tap **Delete device**.

⇨ The message of the type "Are you sure you would like to delete the selected device?" is shown.

3 To delete, tap ✓ **OK**. To cancel the delete dialog, tap ✕ **Cancel**.

⇨ The device is deleted.

5.6.3 Editing device settings

1 Select the device from the list of devices and printers.

⇨ Device type, name, status and settings are shown.

2 To change the name of the device, tap **Name**, enter the name and tap ✓.

3 Some devices, e.g., printers, have additional editable settings. To edit those settings, tap ▸ **Printer settings**.

⇨ The dialog printer settings opens.

5.6.4 Printing a test page

If you have installed a printer, a test page can be printed.

1 Select the printer in the list of devices.

2 Tap ••• **More** and tap **Print test page**.

5.7 Tolerance profiles

Navigation: Balance menu > Settings > Balance > Weighing / Quality > Tolerance profiles

Creating a Tolerance profile

1 Tap + **New** to create a new profile.

2 Define the profile settings.

3 When all the settings have been defined, tap ✓ **OK**.

⇨ The system returns to the profile list and the new profile appears on the list.

By tapping an existing profile, its settings can be changed, the profile can be deleted or it can be set as default value. Several profiles can be created. A default profile must be selected.

If changes are made to the default tolerance profile, the status of the routine tests will be set to **Never executed**.

5.8 Data management

Navigation: Balance menu > Maintenance > Import / Export

The import or export of data can be used to save or transfer data from one balance to another.

The following data can be imported or exported:

- **Balance settings**
- **Methods**
- **Tests and weights**

5.8.1 Exporting data and settings

1 Select **Export data and settings**.

⇨ The dialog **Export data and settings** opens.

2 Select **Export** and tap → **Next**

⇨ The window **Export data and settings** appears.

3 Select the data type(s) you want to export.

4 Plug in the USB storage device to one of the USB-A ports of the balance.

5 Tap ✓ **Export**.

⇨ A list of available USB storage devices opens.

6 Select the target USB storage device to store the data.

7 Tap → **Next**.

⇨ The system exports the data to the USB storage device. If the export was successful, the screen shows ✓ with the file name and its target folder.

8 Tap ✕ **Close** to finish the process.

5.8.2 Importing data and settings

With the function **Import data and settings**, settings from other balances can be imported to this balance. It is also possible to re-import settings that have been exported.

1 Select **Import data and settings**.
2 Plug in the USB storage device with the data to import.
3 Tap → **Next**.
⇨ A list of available USB storage devices opens.
4 Select the USB storage device with the data to import.
5 Tap → **Next**.
6 Select the data file you want to import.
7 Tap → **Next**.
8 Select the data type(s) you want to import.
⇨ When importing methods, you can select if all methods or a selection of methods will be imported. Methods of the same name will be overwritten.
9 Tap ✓ **Import**.
⇨ The message **Import of data and settings has been executed.** appears. The import was successful. Tap ✕ **Close** to return to the main weighing screen.

5.9 Password protection and balance reset

The balance settings or the whole balance can be blocked to prevent unauthorized modifications or usage. An unblocking password first needs to be created.

NOTICE

Unusable balance due to forgotten password

A blocked balance cannot be unblocked without the unblocking password.

– Note the password and keep it in a safe place.

5.9.1 Creating an unblocking password

Navigation: Balance menu > Settings > Balance > General

1 To create an unblocking password, tap ••• **More** in the action bar and select **Unblocking password**
⇨ The dialog **Set unblocking password** opens.
2 Set a new password, confirm it, and tap ✓ **OK**.
3 In the dialog **General**, tap ✓ **Save** and ✓ **OK**.
⇨ The unblocking password is created.
⇨ The additional option **Blocking** is available in the action bar of the **Balance menu**. It can be used to block the balance or block/unblock the balance settings.

5.9.2 Blocking and unblocking the settings

Blocking the settings will prevent unauthorized modifications of the settings of the balance. Further usage of the balance is possible, but the balance settings cannot be edited without the unblocking password (except **Language**).

Navigation: Balance menu > Blocking

5.9.2.1 Blocking the settings

1 To block the balance settings, tap **Block settings**.
⇨ The dialog **Block balance** opens.

2 Tap ✓ **OK** to block the settings.

⇨ The balance settings are blocked. The balance can be used normally, but the balance and method settings cannot be edited.

5.9.2.2 Unblocking the settings

- The balance settings are blocked.
- The unblocking password is available.

1 To unblock the balance settings, tap **Unblock settings**.

2 Type the unblocking password and tap ✓ **OK**.

⇨ The balance settings are unblocked.

5.9.3 Blocking and unblocking the balance

Blocking the balance will prevent any further usage of the balance. The balance can only get unblocked with the unblocking password.

5.9.3.1 Blocking the balance

Navigation: Balance menu > Blocking

1 To block the balance tap **Block balance**.

⇨ The dialog **Block balance** opens.

2 Tap → **Next**.

3 Enter your unblocking password and tap ✓ **Block balance**.

⇨ The balance is blocked and the blocking screen appears.

5.9.3.2 Unblocking the balance

- The balance is blocked and the blocking screen is open.
- The unblocking password is available.

1 To unblock the balance, type the unblocking password in the password field.

2 Tap **Unblock balance**.

3 Tap ✓ **Unblock balance** to confirm.
By tapping ✕ **Cancel** instead, the main weighing screen appears, but the balance is still blocked and only a limited number of settings can be edited.

⇨ The balance is unblocked and the main weighing screen appears.

5.9.4 Resetting the balance

Navigation: Balance menu > Maintenance > Reset

NOTICE

Reset causes data loss

Resetting the balance will delete user application data and set the user configuration back to factory state.

1 To delete the data for test history and adjustment history, activate the option **Also delete test and adjustment history**.

2 Tap → **Next**.

⇨ The window **Reset balance** opens and warns that some data will be lost by resetting the balance.

3 Tap **Reset balance**.

⇨ The balance software restarts in factory state.

6 Software description

6.1 Balance menu settings

The **Balance menu** contains general settings and information. To open the section **Balance menu**, tap the symbol ⚙ on the right-hand side of the display.

The section **Balance menu** is divided into the following subsections.

- **Leveling aid** (see [Leveling aid ▶ Page 61])
- **History** (see [History ▶ Page 61])
- **Balance info** (see [Balance info ▶ Page 62])
- **Settings** (see [Settings ▶ Page 62])
- **Maintenance** (see [Maintenance ▶ Page 71])

6.1.1 Leveling aid

Exact horizontal positioning and stable installation is essential for repeatable and accurate weighing results. With the **Leveling aid** the balance can be leveled.

Navigation: ⚙ Balance menu > Leveling aid

Note

After leveling the balance an internal adjustment must be performed.

6.1.2 History

The balance permanently records the tests and adjustments that are performed in the section **History**

Navigation: ⚙ Balance menu > History

The section **History** is divided into the following subsections:

- **Adjustments**, **see** below.
- **Tests**, **see** below.
- **Service**, **see** below.

6.1.2.1 Adjustments

Navigation: ⚙ Balance menu > History > Adjustments

A maximum of 500 entries can be stored in the adjustments history.

Symbol	Description	Procedure
	**Filter**	Tap to **Filter** the adjustment history by a defined date range or by a user ID.
	**Print**	Tap to print the adjustment history list.
	**Close**	Tap to return to the section **History**

6.1.2.2 Tests

Navigation: Balance menu > History > Tests

A maximum of 500 entries can be stored in the test history.

Symbol	Description	Procedure
	**Filter**	Tap to **Filter** the test history by a defined date range or by a user ID.
	**Print**	Tap to print the test history list.
	**Close**	Tap to return to the section **History**.

6.1.2.3 Service

Navigation: Balance menu > History > Service

A maximum of 500 entries can be stored in the service history.

Symbol	Description	Procedure
	**Filter**	Tap to **Filter** the service history by a defined date range or by technician.
	**Print**	Tap to print the service history list.
	**Close**	Tap to return to the section **History**.

6.1.3 Balance info

Navigation: Balance menu > Balance info

The section **Balance info** shows numerous information about the specific balance such as:

- Identification
- Hardware
- Software
- Maintenance

Symbol	Description	Procedure
	**License agreement**	Tap to open the licence agreement.
	**Close**	Tap to return to the section **History**.

6.1.4 Settings

This section describes the procedure for adapting the balance to suit specific requirements. The system settings apply to the entire weighing system and therefore to all user profiles and applications.

Navigation: Balance menu > Settings

The section **Settings** is divided into the following subsections:

- **Balance**
- **Interfaces**
- **Devices / Printers**
- **LabX / Services**

6.1.4.1 Balance

Navigation: Balance menu > Settings > Balance

The section **Balance** is divided into the following subsections:

- **Weighing / Quality**
- **Doors**
- **Date / Time / Language / Format**
- **Screen / StatusLight / Sound**
- **General**

Weighing / Quality

Navigation: Balance menu > Settings > Balance > Weighing / Quality

Parameter	Description	Values
Leveling warning	Defines the behaviour of the option **Leveling warning**. When the option **Forced leveling** is selected and the balance is out of level, a weighing value cannot be added to the protocol (green button disabled).	Inactive I Optional leveling* I Forced leveling
Tolerance profiles	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods. This option has several subsections and is described later in this chapter.	
Automatic weight value output	Defines if and in which manner (MT-SICS and/or HID) the weighing values should be exported. This option has several subsections and is described later in this chapter.	
GWP Approved mode	Good Weighing Practice (GWP®) is a program started by METTLER TOLEDO to help customers operate their weighing equipment in a safe and efficient way. It covers every relevant step in the life cycle of the instrument and provides clear guidance on how to specify, calibrate and operate weighing instruments. The GWP Approved mode observes if the following conditions are given: • Use of an appropriate tolerance profile. • The internal adjustment was successful. • Required tests were successful. • Setting up of enforced leveling. • No MinWeigh violation. If all conditions are given, the balance adds the GWP Approved sign behind every weighing result. The **GWP Approved mode** can only be enabled by a METTLER TOLEDO service technician.	Active I Inactive*

Balance recalib. reminder	Defines whether the user is reminded about the upcoming exipry date of the calibration.	Active* I Inactive
Days in advance	Defines the number of days before the reminder informs about the upcoming due date.	0…365
Action when calib. expired	Defines the action when the calibration has expired. **Block**: The balance will be blocked. In this case, the balance cannot be used anymore until a user with the appropriate right unblocks the balance.	None* I Block
Days before blocking	Defines the number of days before the reminder informs about the upcoming expiry date.	Days (30 days* I 0…400 days)
Weight recalib. reminder	Defines whether the user is reminded about the upcoming expiry date of the test weight calibration.	Active I Inactive*
Service reminder	Defines whether the user is reminded about the upcoming due date of the service.	Active I Inactive*

* Factory setting

Tolerance profiles

Settings relating to weighing performance and data from balance calibration can be stored in a tolerance profile.

For more information about creating tolerance profiles, see [Tolerance profiles ▶ Page 58]

Parameter	Description	Values
Name	Defines the name of the profile.	Text (0…22 characters)
Indicator	Defines the color of the indicator icon for the tolerance profile. The icon will appear above the weighing value unit. When a color is selected, a description of max. 3 characters can be added.	None* I Neutral I White I Yellow I Red I Blue I Green I Black
Indicator text	Defines the text of the indicator icon.	Text (0…3 characters)
Calibration certificate	Selects a calibration certificate from a drop-down list of certificates available on the balance. New certificates can only be created by a service technician based on a performed balance calibration.	Calibration certificate I None*
Environment	Defines the environmental conditions of the balance. **Very stable**: For an environment that is free from any drafts and vibrations. **Stable**: For an environment that is practically free from drafts and vibrations. **Standard**: For an average working environment subject to moderate variations in the ambient conditions. **Unstable**: For an environment where the conditions are from time to time changing. **Very unstable**: For an environment where the conditions are continuously changing.	Very stable I Stable I Standard* I Unstable I Very unstable
Weighing mode	Defines the weighing mode of the balance. **Universal**: For all standard weighing applications. **Sensor mode**: Depending on the setting of the ambient conditions, this setting delivers a filtered weighing signal of varying strength. The filter has a linear characteristic in relation to time (not adaptive) and is suitable for continuous measured value processing.	Universal* I Sensor mode

Value release	Defines the speed at which the balance regards the measured value as stable and releases it. **Very fast**: recommended if you require fast results and repeatability is not very important. **Very reliable**: provides very good repeatability of the measured results but prolongs the stabilization time. Some intermediate settings can also be choose from.	Very fast I Fast* I Fast and reliable I Reliable I Very reliable
Display readability	Determines the readability [d] of the balance display. **1d**: Shows the maximum resolution **2d**: Shows the final digit in increments of 2 **5d**: Shows the final digit in increments of 5 **10d**: 10x smaller resolution **100d**: 100x smaller resolution **1000d**: 1000x smaller resolution	1d* I 2d I 5d I 10d I 100d I 1000d
Zero drift compensation	The function **Zero drift compensation** performs ongoing corrections of deviations from zero which may occur, for example, as a result of small amounts of dirt on the weighing pan.	Active* I Inactive
Allowed units	Defines the units that are allowed in this tolerance profile.	The available values are model-specific.

* Factory setting

Automatic weight value output

The balance can be connected to a computer with a USB cable. Weighing results can then be directly transferred to a target application, e.g., Microsoft Excel.

Parameter	Description	Values
Output mode	Defines which weighing values are transferred via the communication interface, e.g., USB, Ethernet. **Protocol**: The weighing values are transferred only when they are added to the **Protocol**. **Continuous**: The weighing values are transferred continuously via the interface defined under **LabX / Services** > **MT-SICS**. Additional fields are available, depending on the chosen option.	Protocol* I Continuous
Target	Defines the way the weighing values are transferred. **HID** (Human Interaction Device): Transfers simple character streams (e.g. weight values) to a desktop computer without installing additional drivers (comparable to a keyboard). The format of a transferred weighing value can be configured. **MT-SICS**: The data is transferred in MT-SICS format (METTLER TOLEDO Standard Interface Command Set). MT-SICS operates bidirectional, i.e. usually balance sends the confirmations to the host and receives commands. A separate reference manual is available for MT-SICS. **HID / MT-SICS**: The data is transferred in HID and MT-SICS format in parallel. **MT-SICS configurable**: The data is transferred in a user-defined MT-SICS format. This parameter is only available if **Output mode** is set to **Protocol**.	HID* I HID / MT-SICS I MT-SICS I MT-SICS configurable

Weight field length	Defines the number of digits that will be transferred into the application on the computer, e.g., into an Excel field. This parameter is only available if **Output mode** is set to **Protocol**.	Numeric (1* I 0...20)
Sign	Defines if the weighing result is displayed with an algebraic sign. **For all values**: Each weighing result is preceded by a plus or minus sign. **For negative values**: Only negative values are preceded by a minus sign. Positive values are transferred without algebraic sign. This parameter is only available if **Output mode** is set to **Protocol**.	For all values I For negative values*
Sign position	Defines if the algebraic sign is positioned at the first place of the weight field or directly in front of the weight digits. This parameter is only available if **Output mode** is set to **Protocol**.	Left of weight field I Left of weight digits*
Decimal delimiter	Defines the character used to separate the whole and fractional part of a numeric value. This parameter is only available if **Output mode** is set to **Protocol**.	, I .*
Net indicator	In the standard output format, net weights are not specially marked. To place an N in front of net weights, this function can be activated. The net symbol is left-justified in the field. This parameter is only available if **Output mode** is set to **Protocol**.	Active I Inactive*
Net indicator field length	Defines the field length of the Net indicator. This parameter is only available if **Output mode** is set to **Protocol** and **Net indicator** is set to **Active**.	Numeric (2* I 1 ... 2)
Unit	Defines if a weighing unit is being shown in the weighing field. This parameter is only available if **Output mode** is set to **Protocol**.	Active* I Inactive
Unit field length	Defines the field length of the weighing unit. This parameter is only available if **Output mode** is set to **Protocol** and **Unit** is set to **Active**.	Numeric (1* I 1...6)
Field delimiter	Defines a character or sequence of characters to separate data fields. This parameter is only available if **Output mode** is set to **Protocol**.	None I Space* I TAB I , I ;
End of line character	Defines a character or sequence of characters signifying the end of a line. This parameter is only available if **Output mode** is set to **Protocol**.	CRLF* I CR I LF I TAB I Outside I Enter
Updates/sec.	Defines the rate at which data is transferred. This parameter is only available if **Output mode** is set to **Continuous**.	2 I 5 I 6* I 10
Format	Defines the format of the transferred data. This parameter is only available if **Output mode** is set to **Continuous**.	MT-SICS* I PM I AT/MT

* Factory setting

Doors

Navigation: Balance menu > Settings > Balance > Doors

Each of the following doors can be managed separately:

- **Door left**
- **Door right**

Parameter	Description	Values
Door drive mode	Defines the mode to open/close the door.	Motorized* I Manual
Door opening	Defines how far the door open. The following options appears only when **Motorized** is selected as the door drive mode. Enter the value manually or capture it by tapping on-. The door will be open with the configured value.	Numeric (1…100%)
Door key left	Defines the automation of the left door key on the Terminal.	Active I Inactive*
Door key right	Defines the automation of the right door key on the Terminal.	Active I Inactive*
SmartSens left	Defines the touchless door function of the left optical sensor.	Active I Inactive*
SmartSens right	Defines the touchless door function of the right optical sensor.	Active I Inactive*
Devices	Defines the door opening or closing via an external device, such an ErgoSens or a footswitch.	Active I Inactive*
Automatic (Tare / Zero / Result)	**Automatic (Tare / Zero / Result)**: Closes the door automatically when taring, zeroing the balance or adding to protocol.	Active I Inactive*
Automatic (Tare / Zero / Result)	**Automatic (Tare / Zero / Result)**: Closes the door automatically when taring, zeroing the balance or adding to protocol.	Active I Inactive*

* Factory setting for the right door / for the left door reverse

Date / Time / Language / Format

Navigation: Balance menu > Settings > Balance > Date / Time / Language / Format

Parameter	Description	Values
Date	Defines the current date. Use the pick buttons Increment/ Decrement to define the date.	Date
Time	Defines the current time. Use the pick buttons Increment/Decrement to define the time.	Time
Language	Defines the language of the interface navigation.	English I Deutsch I Français I 日本語 I 中文 I Español I Italiano I Русский I Português I Polski I Magyar I Čeština
Time zone	Selects a time zone. When the time zone is set, the balance changes automatically between summer and winter time	see list on the screen
Date format	Selects the date format.	D.MMM.YYYY* I MMM D YYYY I DD.MM.YYYY I MM/DD/YYYY I YYYY-MM-DD I YYYY/MM/DD I YYYY年M月D日
Time format	Selects the time format.	24:MM* I 12:MM I 24.MM I 12.MM

Keyboard layout	Defines the language of the keyboard layout.	English I German I French I Spanish I Japanese I Simplified Chinese I Russian I Czech I Polish I Hungarian

* Factory setting

Screen / StatusLight / Sound

Navigation: ⚙ Balance menu > ⚙ Settings > Balance > Screen / StatusLight / Sound

Parameter	Description	Values
Screen brightness	Defines the brightness of the display.	20 % I 40 % I 60 % I 80 %* I 100 %
Sound volume	Defines the volume of the terminal sound.	Inactive I 20 % I 40 % I 60 %* I 80 % I 100 %
Sound on key press	Defines if there is a sound when a key is pressed.	Active* I Inactive
Sound on info	Defines if there is a sound when an information appears on the screen.	Active* I Inactive
Sound on warning	Defines is there is a sound when a warning appears on the screen.	Active* I Inactive
Sound on error	Defines is there is a sound in case of an error.	Active* I Inactive
StatusLight	Activates/deactivates the **StatusLight**. **Active (without green light)**: All current status of the balance are monitored, the red/yellow lights will turn on if needed, but the green light will stay turned off. • **StatusLight** is red: Error. The balance must not be used until the error is corrected. • **StatusLight** is yellow: Warning. For example, the test manager has pushed a test to the balance or you are operating the balance between the date of the calibration reminder and the scheduled date of the next calibration. The balance can still be used. • **StatusLight** is green or off: Ok. No problems detected and the balance is ready to weigh.	Active* I Active (without green light) I Inactive
StatusLight brightness	Defines the brightness of the activated status light. This option appears only when the option **StatusLight** is set to **Active** or **Active (without green light)**.	20 % I 40 % I 60 %* I 80 % I 100 %

* Factory setting

General

Navigation: ⚙ Balance menu > ⚙ Settings > > Balance General

Parameter	Description	Values
Balance ID	Defines the ID of the balance. This name could be used to communicate with the balance over a network. No space or special characters are allowed.	Text (0…22 characters)

Standby	Activates/deactivates the automatic standby mode. **Active**: The standby mode becomes active after a configurable time period the balance was not used. **Inactive**: The standby mode has to be activated manually by tapping the ON/OFF button.	Active* I Inactive
Wait time	Defines after how many minutes the balance switches automatically in standby mode when not used. This option is only activated when the option **Standby** is set to **Active**.	Numeric (10 minutes* I 0…60 minutes)
Software update on system start-up	With this option activated, software update can be performed from a USB storage device on startup.	Active* I Inactive

6.1.4.2 Interfaces

Navigation: ⚙ Balance menu > ⚙ Settings > Interfaces

The section **Interfaces** has the following subsection:

- **Ethernet**
- **Bluetooth**

Ethernet

With the option **DHCP** activated, the parameters for the ethernet connection will be automatically set. With the option **Manual** activated, the options for the ethernet connection must be set manually by the user.

Navigation: ⚙ Balance menu > ⚙ Settings > Interfaces > Ethernet

Parameter	Description	Values
Host name	Defines the balance host name.	Numeric (22* I 0 ... 22)
MAC address	Information on the MAC address (Media Access Control) that is used to uniquely identify the balance in the network.	-
Network configuration	**DHCP**: The parameters for the ethernet connection will be automatically set. **Manual**: The options for the ethernet connection must be set manually by the user.	DHCP* I Manual
IP address	If the IP is not to be automatically obtained, you can enter it here.	000.000.000.000 … 255.255.255.255
Subnet mask	Defines the subnet mask that is used by the TCP/IP protocol to determine whether a host is on the local subnet or on a remote network.	000.000.000.000 … 255.255.255.255
DNS server (primary)	Defines the domain name server address of the primary server.	000.000.000.000 … 255.255.255.255
DNS server (secondary)	Defines the domain name server address of the secondary DNS server.	000.000.000.000 … 255.255.255.255
Default gateway	Defines the address of the default gateway that links the host's subnet to other networks.	000.000.000.000 … 255.255.255.255

* Factory setting

Bluetooth

Navigation: Balance menu > Settings > Interfaces > Bluetooth

Bluetooth identification

Parameter	Description	Values
Activation	With the option **Bluetooth** you have the possibility to communicate with a printer via Bluetooth.	Inactive* I Active

6.1.4.3 Devices / Printers

In this section optional external devices such as printers, barcode scanners, etc. can be added and configured.

Navigation: Balance menu > Settings > Devices / Printers

This section is divided into the following subsections:

- **Label printer**
- **Strip printer**
- **Barcode reader**
- **ErgoSens**
- **Foot switch**

Label printer

Navigation: Balance menu > Settings > Devices / Printers > Label printer

Parameter	Description	Values
Printer category	Defines the type of the printer. Strip printer allows the printing of weighing results on strip paper.	Strip printer I Label printer*
Device	Allows to activate or deactivate the device.	Activated* I Deactivated

* Factory setting

Strip printer

Navigation: Balance menu > Settings > Devices / Printers > Strip printer

Parameter	Description	Values
Printer category	Defines the type of the printer. Strip printer allows the printing of weighing results on strip paper.	Strip printer I Label printer*
Device	Allows to activate or deactivate the device.	Activated* I Deactivated
Line end	Defines the line end character for printing. The values set here have to match the printer settings.	<CR> <LF>* I <CR> I <LF>
Character set	Defines the communication specific character code. The values set here have to match the printer settings.	ANSI/WIN I IBM/DOS I UTF8*

* Factory setting

ErgoSens

Navigation: Balance menu > Settings > Devices / Printers > ErgoSens

Parameter	Description	Values
Function	Defines the function of hands-free operating that can be used to execute certain weighing functions.	None* I Doors I Zero I Tare I Add result

Foot switch

Navigation: Balance menu > Settings > Devices / Printers > Foot switch

Parameter	Description	Values
Function	Defines the function be used to execute certain weighing functions.	None* I Doors I Zero I Tare I Add result

6.1.4.4 LabX / Services

Several services are available to communicate with the balance: **LabX service**, **MT-SICS service**, or **Web service**. Note that only one service can be enabled at any given time.

To enable communication between LabX and instruments, the appropriate settings in the instruments must correspond with the settings in LabX. LabX synchronizes the date and time on the instruments with the LabX Server each time a connection is made and each time a task is started. When an instrument is connected, the user interface language on the connected instrument is changed to the language currently installed on the LabX installation.

Navigation: Balance menu > Settings > LabX / Services

Parameter	Description	Values
LabX service	**Inactive**: No connection to LabX will be established. **Network**: A network connection to LabX will be established on startup. The **Port** must be specified. **USB**: A USB connection to LabX will be established on startup.	Inactive* I Network I USB
MT-SICS service	**Inactive**: No MT-SICS port will be opened. **Network**: An MT-SICS network port will be opened on startup. The **Port** must be specified. **USB**: An MT-SICS USB port will be opened on startup.	Inactive* I Network I USB
Web service	If set to **Active**, a network port will be opened on startup. Use the menu **Web service configuration** to configure the service. The complete **Web service** documentation is available online (www.mt.com/labweighing-software-download).	Inactive* I Active

* Factory setting

6.1.4.5 Printing the settings

Navigation: Balance menu > Settings > ••• More

When all the balance settings are configured, you can print the complete list to archive the information.

– To print the balance settings, tap **Print the settings**

⇨ The complete balance settings are printed.

6.1.5 Maintenance

Navigation: Balance menu > Maintenance

The section **Maintenance** is divided into the following subsections:

- **Import / Export**
- **Software update**
- **Reset**
- **Service**

See also

- Data management ▸ Page 58
- Software update ▸ Page 128
- Resetting the balance ▸ Page 60

6.1.5.1 Service menu

Navigation: Balance menu > Maintenance > Service

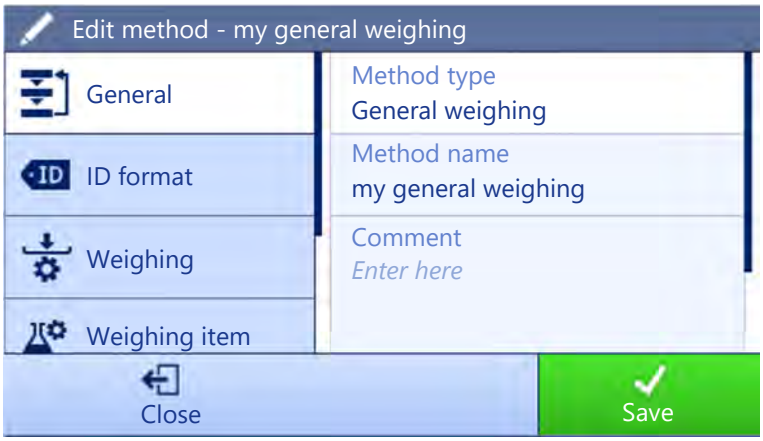
Symbol	Description	Procedure
	Show adjustment state	Tap to open information about: - Temperature correction - Production and user linearization - User, production and standard calibration
	Save support files	Tap to save support files (all relevant information to an error) on a USB storage device like an USB stick to send it to a METTLER TOLEDO representative.
	Import log configuration	A log configuration file can be provided by METTLER TOLEDO to allow a more comprehensive collection of balance parameters to be stored in the support file. This is only used for troubleshooting purposes. Tap to import the log configuration from a USB storage device so that the enhanced list of parameters can be exported and sent to a METTLER TOLEDO representative.

6.2 Weighing methods settings

6.2.1 Settings: method "General weighing"

In this section, the settings of the methods **General weighing** and **General weighing with templates** are described. Settings can be edited for a newly created method or an already existing method.

Navigation: Methods > Methods list > my general weighing > Edit



The settings of the method **General weighing** are grouped as follows:

- **General**
- **ID format**
- **Weighing**
- **Weighing item** (only available for the method **General weighing**)
- **Templates** (only available for the method **General weighing with templates**)
- **Automation**
- **Print / Export**

See also

- Editing a method ▶ Page 44
- Creating a method "General weighing" ▶ Page 37

6.2.1.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function **Method wizard**.	Text (1…22 characters)
Comment	The method can be described with a comment.	Text (0…128 characters)
Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

* Factory setting

6.2.1.2 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the value of the option **Number of task IDs** is larger than 0, the options **Task ID**, **Task description** and **Prefix/Default value** appear for every single task ID.	0 I 1* I 2
Task ID 1	Defines the naming type of the task ID. **Manual with default**: The value of the task ID can be entered manually at method execution time. **Automatic timestamp**: The system provides a value created from a prefix with the current date and time appended.	Manual with default* I Automatic timestamp
Task description	Allows to define a label for each task ID field.	Text (0...32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This option only appears when the option **Manual with default** is activated.	Text (0...32 characters)
Prefix	Defines a prefix for the task ID. This option only appears when the option **Automatic timestamp** is activated.	Text (0...32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the value of the option **Number of result IDs** is larger than 0, the options **Result ID 1**, **Result description** and **Prefix/Default value** appear for every single result ID.	0 I 1* I 2
Result ID 1	Defines the naming type of the result ID. **Manual with default**: The value of the result ID can be entered manually at method execution time. **Automatic counter**: The system provides a value created from a prefix with an unique number (counter) appended.	Manual with default* I Automatic counter

Result description	Allows to define a label for each result ID.	Text (0…32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This option only appears when the corresponding result ID is set to **Manual with default**.	Text (0…32 characters)
Prefix	Defines a prefix for the result ID. This option only appears when the corresponding result ID is set to **Automatic counter**.	Text (0…32 characters)

* Factory setting

6.2.1.3 Weighing

Custom unit

When the parameter **Define custom unit** is activated, additional parameters can be defined.

Parameter	Description	Values
Define custom unit	With this option activated, a specific weighing unit can be defined. This allows calculations, e.g., surfaces or volumes, to be carried out directly during the determination of the weighing result. The custom units are available in all menus and input fields in which weighing units can be selected.	Active I Inactive*
Name	Defines the name of the custom unit.	Text (0…6 characters)
Formula	Defines how subsequently defined value for **Factor** is calculated. There are 2 formulae available: **Multiplicative**: Multiplies the net weight by the factor. **Divisive**: The factor is divided by the net weight. The formula can be used, for example, to simultaneously take into account a known error factor while weighing.	Multiplicative* I Divisive
Factor	Defines the factor with which the effective weighing result (net weight) is calculated via the previously selected **Formula**.	Numeric
Display readability	Defines the formatting for the weighing result. Example: A setting of "0.05" defines two places after the decimal point with rounding to 5. A determined result of 123.4777 is consequently displayed as 123.50. This function can only be used to reduce the resolution of the weighing result. No value must therefore be entered that exceeds the maximum balance resolution. Values that are too small are automatically rounded off.	Numeric

* Factory setting

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.

Weight capture mode	Defines the behavior when the button to add the result was tapped or the add result was triggered by the automatic weighing result creation. **Stable**: The system waits for a stable weight. **Immediate**: The system doesn't wait for a stable weight. The system waits for the defined amount of seconds (**Weight capture delay**). After the weight capture delay, the weight value from the weight stream is captured.	Stable* I Immediate
Weight capture delay	Defines the time in seconds the balance waits for capturing the weight after the button to add the result was tapped or the add result was triggered by the automatic weighing result creation. This option only appears when the **Weight capture mode** is set to **Immediate**.	Numeric (5 seconds* I 0…60 seconds)

* Factory setting

Statistics

Parameter	Description	Values
Activate statistics	If **Activate statistics** is set to **Active**, the following statistics will be calculated: **Count**: Number of items used for the statistics **Sum**: Sum of all value (decimal places and unit according to the method settings) **Minimum**: Smallest value (decimal places and unit according to the method settings) **Maximum**: Largest value (decimal places and unit according to the method setting) **Range**: Difference between the largest and smallest values (decimal places and unit according to the method settings) **Average**: The values are summed up and divided by the number of values, rounded to 1 digit more than the configured decimal places in the associated tolerance profile (unit according to the method settings) **Standard deviation**: Standard deviation rounded to 1 digit more than the configured decimal places in the associated tolerance profile (unit according to the method settings) **Relative standard deviation**: Relative standard deviation (rounded to 2 decimal places, in %) The statistical values are calculated and displayed as soon as a result is added or updated.	Active I Inactive*

* Factory setting

Electrostatic

Parameter	Description	Values
Ionizer	Defines whether the ionizer is activated/deactivated.	Active I Inactive*

* Factory setting

See also

Creating a method "General weighing" ▸ Page 37

6.2.1.4 Weighing item

A target weight with tolerance limits can be defined for the method. The method **General weighing** includes a single item in **Weighing item**, whereas several items can be defined for the method **General weighing with templates** in **Templates**.

Initial values for weighing

Parameter	Description	Values
Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-tolerance	Defines the lower tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric
+tolerance	Defines the upper tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric

See also

Creating a method "General weighing" ▸ Page 37

6.2.1.5 Templates

This section is only available for the method **General weighing with templates**.

Parameter	Description	Values
Sample ID	Defines the name of the sample.	Text (0…32 characters)
Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-tolerance	Defines the lower tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric
+tolerance	Defines the upper tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric

See also

Creating a method "General weighing" ▸ Page 37
Using method templates ▸ Page 45

6.2.1.6 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed. **Keyboard Input**: The data is written in the currently open input window. If no input window is open, the data is ignored. **Target weight value**: The barcode data is interpreted as a value for the target weight. **Task ID 1**: The received barcode data is treated as identification text for this task ID. **Result ID 1**: The received barcode data is treated as identification text for this result ID. The available items in the drop-down menu depend on the **Number of task IDs** and **Number of result IDs** specified for the method. Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	Keyboard Input* I Target weight value I Task ID 1 I Result ID 1 I ...

* Factory setting

Weighing automation

Parameter	Description	Values
Automatic zero	If **Automatic zero** is set to **Active**, the balance automatically zeros the balance when the weight falls below a predefined threshold.	Active I Inactive*
Automatic zero threshold	Defines the threshold of the option **Automatic zero**. This option only appears when the option **Automatic zero** is activated.	Numeric
Tare Mode	Defines the tare mode. **None**: No automatic tare. **Automatic tare**: The balance stores automatically the first stable weight as the tare weight. **Preset tare**: Allows you to enter manually a numerical entry of a fixed tare weight.	None* I Automatic tare I Preset tare
Automatic tare threshold	Defines the threshold of the option **Tare Mode**. This value defines the minimum weight that must be applied to the weighing pan so that it is automatically stored as the tare weight. If the weight is below the limits, it is not automatically transferred to the tare memory. Instead of entering the weight, the lightest tare container can be placed on the weighing pan and the button subsequently pressed. The applied weight is directly taken over as a limit. This option only appears when the option **Tare Mode** is set to **Automatic tare**.	Numeric
Preset tare value	Defines a weight value for the pretare function. Instead of entering the value, the respective tare container can be placed on the weighing pan and the button subsequently pressed. The weight is directly taken over as pretare value. This option only appears when the option **Tare Mode** is set to **Preset tare**.	Numeric

Automatic result	Automatically generates a weighing result after a threshold is reached. **None**: No automatic result will be generated. **With sample tare**: After a weight value that reached the threshold is being removed from the weighing pan, the balance is being tared. **Without sample tare**: After a weight value that reached the threshold is being removed from the weighing pan, the balance is not being tared.	None I With sample tare* I Without sample tare
Automatic result threshold	Defines the threshold of the option **Automatic result**. The result is automatically added to the protocol only if the weight of the sample is larger than this threshold. This option only appears when the option **Automatic result** is activated.	Numeric
Weight trigger	Defines the behaviour of the option **Automatic result threshold**. **Exceeding**: The weighing result is generated when the weight exceeds the defined threshold. **Falling below**: The weighing result is generated when the weight falls below the defined threshold. This parameter is only available if **Automatic result** is set to **Without sample tare**.	Exceeding* I Falling below
Automatic tare after result	If set to **Active**, the balance is automatically tared when a result is added to the **Protocol**.	Active I Inactive*
Automatic task completion	If **Automatic task completion** is set to **Active**, the balance automatically completes a running task after the last template has been added to the **Protocol**. This option is only available if the method is using templates.	Active I Inactive*

* Factory setting

See also

Creating a method "General weighing" ▸ Page 37

6.2.1.7 Print / Export

This section is divided into the following subsections:

- **Protocol printout and data export**
- **Label printout for task**
- **Label printout for weighing item**

Protocol printout and data export

Automatic data output

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the **Complete** button is tapped. The data to be transmitted to the printer can be defined in the section **Template settings**.	Active I Inactive*
Protocol export	Activates/Deactivates the automatic data export to a USB storage device when the **Complete** button is tapped.	Active I Inactive*

Weight value	Activates/Deactivates the option to automatically send the weighing value over USB or Ethernet when tapping **Add to protocol**.	Active I Inactive*

* Factory setting

Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

1 To deselect all check boxes at once, tap **Deselect all**

⇨ All parameters are set to **Inactive**.

2 To select all check boxes at once, tap **Select all**

⇨ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header* I Title* I Date/ time I Signature* I Separating lines* I Group titles
Balance information	Defines which information about the balance is being printed/ exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality information	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state
Task information	Defines which information about the task is being printed/export.	Method name I Method comment I Task IDs I Custom unit settings I Automatic result settings I Count I Sum I Average I Minimum I Maximum I Range I Standard deviation I Relative standard deviation
Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items I Result State I Result IDs* I GWP Approved state I Electrostatic charge I Level state I MinWeigh state I Tolerance state I Target and tolerances state

Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight* I Tare weight I Gross weight I Info weight I Date/time* I Stability

* Factory setting

Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to **Active**, the task label is automatically printed when tapping **Complete**.	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The number of label fields depends on the selected template.	Available entries depend on the method settings.

Barcode settings

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. The option **2D barcode delimiter** appears only when the selected **Used template** contains several 2D codes.	TAB I Form feed I Carriage return I Space I User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

Label printout for weighing items

Parameter	Description	Values
Automatic label printout for weighing item	When set to **Active**, the weighing item label is automatically printed when tapping **Add to protocol**.	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The number of label fields depends on the selected template.	Available entries depend on the method settings.

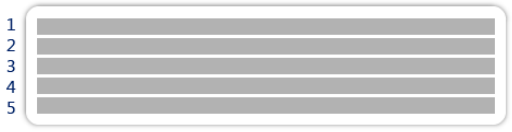
Barcode settings

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

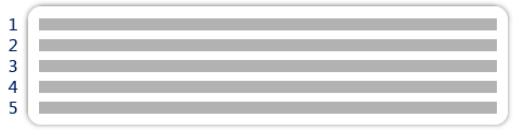
Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. The option **2D barcode delimiter** appears only when the selected **Used template** contains several 2D codes.	TAB I Form feed I Carriage return I Space I User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

Available labels

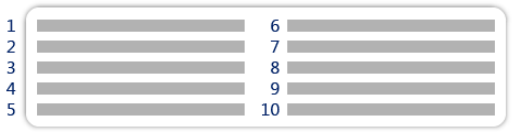
The following label layouts can be selected:



5 large fields



5 small fields

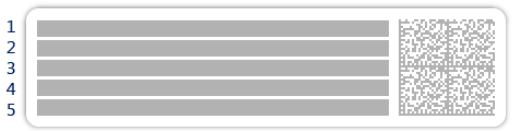


10 small fields

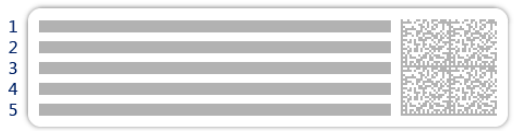
1D barcode with 3 large fields

1D barcode with 3 small fields

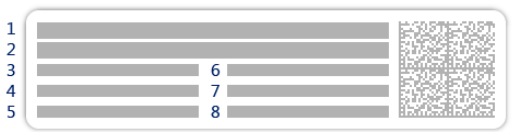
1D barcode with 6 small fields



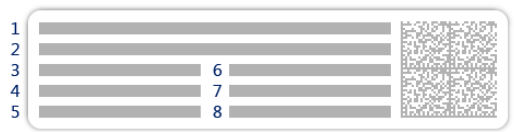
2D barcode with 5 large fields



2D barcode with 5 small fields



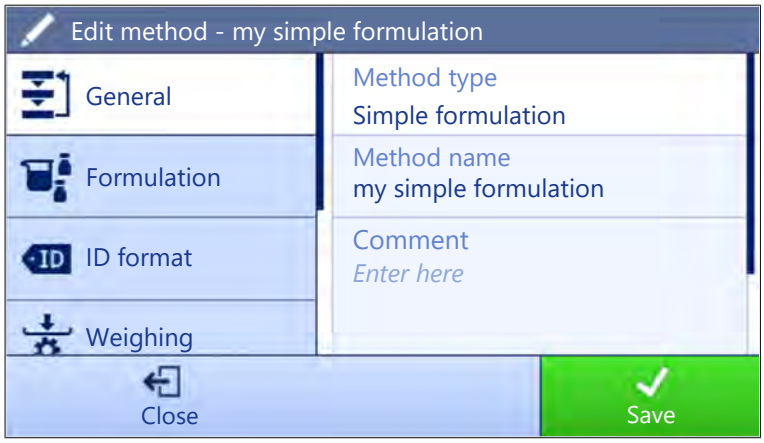
2D barcode with 2 large fields and 6 small fields



2D barcode with 8 small fields

6.2.2 Settings: method "Simple formulation"

Navigation: Methods > Methods list > my simple formulation > Edit



The settings of the method **Simple formulation** are grouped as follows:

- **General**
- **Formulation**
- **ID format**
- **Weighing**
- **Weighing item** (only available for the method **Simple formulation**)
- **Templates** (only available for the method **Simple formulation with templates**)
- **Automation**
- **Print / Export**

See also

- Creating a method "Simple formulation" ▸ Page 38
- Editing a method ▸ Page 44

6.2.2.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function **Method wizard**.	Text (1…22 characters)
Comment	The method can be described with a comment.	Text (0…128 characters)
Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

* Factory setting

6.2.2.2 Formulation

Parameter	Description	Values
Calculate target	In this section the flask volume and the concentration of the target can be defined. **Flask volume**: Calculates the target weight according to the reference flask volume and the actual flask volume. **Target concentration**: Calculates the target weight according to the desired target concentration. This option only appears for the method **Simple formulation with templates**.	None* I Flask volume I Target concentration
Calculate concentration per component	Calculates the concentration of the substance based on the molecular weight, purity volume and dosed amount of substance, e.g. mmol/l. If this option is activated, the sub-options **Reference weight (100%)** and **Concentration unit** appear in the list.	Active I Inactive*
Calculate amount of component	Calculates the effective amount of a component based on the current weighing value.	Active I Inactive*
Concentration unit	Defines the concentration unit.	mol/l* I mmol/l I mg/ml I mg/l I µg/ml I g/ml I g/l I %
Reference flask volume	Defines the volume of the reference flask. This parameter is only available if the **Concentration unit** is not set to **%**.	Numeric (1 ml* I 1…999999 ml)
Reference weight (100%)	Defines the reference weight. Instead of entering the reference weight manually, press subsequently the button . The applied weight is directly taken over as a reference weight. This parameter is only available if the **Concentration unit** is set to **%**.	Depending on the capacity of the balance.

* Factory setting

Production and expiry date

Parameter	Description	Values
Production date	Defines the production date. **Current date**: The production date is set automatically to the date when starting the weighing task. **Manual input**: The production date can be entered manually when starting the weighing task.	None I Current date* I Manual input
Expiry date	Defines the expiry date of the substance. **Period**: The expiry date is set automatically when starting the weighing task (expiry date = date when starting the weighing task + number of days defined in the field **Period**. **Manual input**: The expiry date can be entered manually when starting the weighing task.	None* I Period I Manual input
Period	Defines the period of the expiry date. This option only appears when the option **Expiry date** is set to **Period**.	Numeric (1 day* I 1…9999 days)

* Factory setting

See also

Creating a method "Simple formulation" ▶ Page 38

6.2.2.3 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the value of the option **Number of task IDs** is larger than 0, the options **Task ID**, **Task description** and **Prefix/Default value** appear for every single task ID.	0 I 1* I 2
Task ID 1	Defines the naming type of the task ID. **Manual with default**: The value of the task ID can be entered manually at method execution time. **Automatic timestamp**: The system provides a value created from a prefix with the current date and time appended.	Manual with default* I Automatic timestamp
Task description	Allows to define a label for each task ID field.	Text (0...32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This option only appears when the option **Manual with default** is activated.	Text (0...32 characters)
Prefix	Defines a prefix for the task ID. This option only appears when the option **Automatic timestamp** is activated.	Text (0...32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the value of the option **Number of result IDs** is larger than 0, the options **Result ID 1**, **Result description** and **Prefix/Default value** appear for every single result ID.	0 I 1* I 2
Result ID 1	Defines the naming type of the result ID. **Manual with default**: The value of the result ID can be entered manually at method execution time. **Automatic counter**: The system provides a value created from a prefix with an unique number (counter) appended.	Manual with default* I Automatic counter
Result description	Allows to define a label for each result ID.	Text (0...32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This option only appears when the corresponding result ID is set to **Manual with default**.	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This option only appears when the corresponding result ID is set to **Automatic counter**.	Text (0...32 characters)

* Factory setting

6.2.2.4 Weighing

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.

Electrostatic

Parameter	Description	Values
Ionizer	Defines whether the ionizer is activated/deactivated.	Active I Inactive*

* Factory setting

See also

Creating a method "Simple formulation" ▶ Page 38

6.2.2.5 Weighing item

A target weight with tolerance limits can be defined for the method. The method **Simple formulation** includes a single item in **Weighing item**, whereas several items can be defined for the method **Simple formulation with templates** in **Templates**.

Initial values for weighing

Parameter	Description	Values
Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-tolerance	Defines the lower tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric
+tolerance	Defines the upper tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric

See also

Creating a method "Simple formulation" ▶ Page 38

6.2.2.6 Templates

This section is only available for the method **Simple formulation with templates**.

Parameter	Description	Values
Component ID	Assigns a name to the component ID	Text (0…32 characters)
Purity	To define the purity of the component. This parameter is only accessible if **Calculate amount of component** is set to **Active**.	Numeric (0.001…100%)
Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.

Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
Target concentration	To define the concentration of the component.	Numeric (0.001…100%)
-tolerance	Defines the lower tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric
+tolerance	Defines the upper tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric

See also

- Creating a method "Simple formulation" ▶ Page 38
- Using method templates ▶ Page 45

6.2.2.7 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed. **Keyboard Input**: The data is written in the currently open input window. If no input window is open, the data is ignored. **Target weight value**: The barcode data is interpreted as a value for the target weight. **Task ID 1**: The received barcode data is treated as identification text for this task ID. **Result ID 1**: The received barcode data is treated as identification text for this result ID. The available items in the drop-down menu depend on the **Number of task IDs** and **Number of result IDs** specified for the method. Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	Keyboard Input* I Target weight value I Task ID 1 I Result ID 1 I …

* Factory setting

Weighing automation

Parameter	Description	Values
Automatic zero	If **Automatic zero** is set to **Active**, the balance automatically zeros the balance when the weight falls below a predefined threshold.	Active I Inactive*
Automatic zero threshold	Defines the threshold of the option **Automatic zero**. This option only appears when the option **Automatic zero** is activated.	Numeric
Tare Mode	Defines the tare mode. **None**: No automatic tare. **Automatic tare**: The balance stores automatically the first stable weight as the tare weight. **Preset tare**: Allows you to enter manually a numerical entry of a fixed tare weight.	None* I Automatic tare I Preset tare

Automatic tare threshold	Defines the threshold of the option **Tare Mode**. This value defines the minimum weight that must be applied to the weighing pan so that it is automatically stored as the tare weight. If the weight is below the limits, it is not automatically transferred to the tare memory. Instead of entering the weight, the lightest tare container can be placed on the weighing pan and the button subsequently pressed. The applied weight is directly taken over as a limit. This option only appears when the option **Tare Mode** is set to **Automatic tare**.	Numeric
Preset tare value	Defines a weight value for the pretare function. Instead of entering the value, the respective tare container can be placed on the weighing pan and the button subsequently pressed. The weight is directly taken over as pretare value. This option only appears when the option **Tare Mode** is set to **Preset tare**.	Numeric
Automatic tare after result	If set to **Active**, the balance is automatically tared when a result is added to the **Protocol**.	Active I Inactive*
Automatic task completion	If **Automatic task completion** is set to **Active**, the balance automatically completes a running task after the last template has been added to the **Protocol**. This option is only available if the method is using templates.	Active I Inactive*

* Factory setting

See also

Creating a method "Simple formulation" ▶ Page 38

6.2.2.8 Print / Export

This section is divided into the following subsections:

- **Protocol printout and data export**
- **Label printout for task**
- **Label printout for weighing item**

6.2.2.8.1 Protocol printout and data export

Automatic data output

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the **Complete** button is tapped. The data to be transmitted to the printer can be defined in the section **Template settings**.	Active I Inactive*
Protocol export	Activates/Deactivates the automatic data export to a USB storage device when the **Complete** button is tapped.	Active I Inactive*
Weight value	Activates/Deactivates the option to automatically send the weighing value over USB or Ethernet when tapping **Add to protocol**.	Active I Inactive*

* Factory setting

Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

1 To deselect all check boxes at once, tap **Deselect all**

⇨ All parameters are set to **Inactive**.

2 To select all check boxes at once, tap **Select all**

⇨ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header* I Title* I Date/ time I Signature* I Separating lines* I Group titles
Balance information	Defines which information about the balance is being printed/ exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality information	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state
Task information	Defines which information about the task is being printed/export.	Method name I Method comment I Task ID I Flask volume* I Reference weight* I Expiry date* I Production date*
Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items I Result State* I Result IDs* I Molar mass I Purity I Amount of substance* I Concentration* I GWP Approved state I Level state* I MinWeigh state I Tolerance state* I Target and tolerances state*
Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight* I Tare weight I Gross weight I Info weight I Date/time* I Stability

* Factory setting

Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to **Active**, the task label is automatically printed when tapping **Complete**.	Active I Inactive*

Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The number of label fields depends on the selected template.	Available entries depend on the method settings.

Barcode settings

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. The option **2D barcode delimiter** appears only when the selected **Used template** contains several 2D codes.	TAB I Form feed I Carriage return I Space I User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

Label printout for weighing items

Parameter	Description	Values
Automatic label printout for weighing item	When set to **Active**, the weighing item label is automatically printed when tapping **Add to protocol**.	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The number of label fields depends on the selected template.	Available entries depend on the method settings.

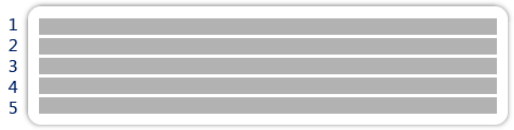
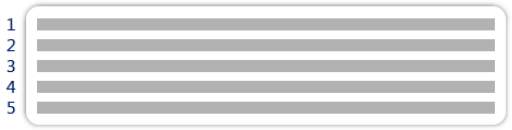
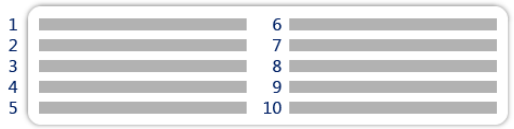
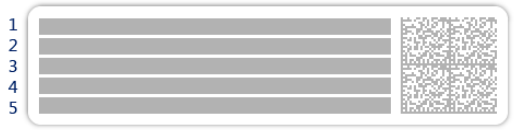
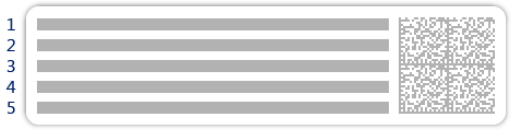
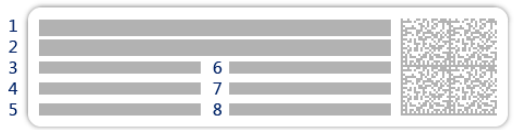
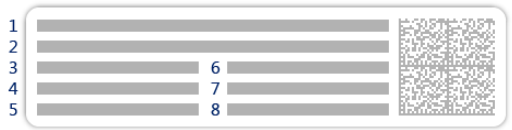
Barcode settings

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. The option **2D barcode delimiter** appears only when the selected **Used template** contains several 2D codes.	TAB I Form feed I Carriage return I Space I User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

Availlable Labels

The following label layouts can be selected:

 5 large fields	 5 small fields
 10 small fields	 1D barcode with 3 large fields
 1D barcode with 3 small fields	 1D barcode with 6 small fields
 2D barcode with 5 large fields	 2D barcode with 5 small fields
 2D barcode with 2 large fields and 6 small fields	 2D barcode with 8 small fields

6.2.3 Settings: method "Piece counting"

Navigation: Methods > Methods list > my piece counting > Edit

The settings of the method **Piece Counting** are grouped as follows:

- **General**
- **ID format**
- **Weighing**
- **Weighing item**
- **Automation**
- **Print / Export**

See also

- Editing a method ▸ Page 44
- Creating a method "Piece counting" ▸ Page 40

6.2.3.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function **Method wizard**.	Text (1…22 characters)
Comment	The method can be described with a comment.	Text (0…128 characters)
Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

* Factory setting

6.2.3.2 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the value of the option **Number of task IDs** is larger than 0, the options **Task ID**, **Task description** and **Prefix/Default value** appear for every single task ID.	0 I 1* I 2
Task ID 1	Defines the naming type of the task ID. **Manual with default**: The value of the task ID can be entered manually at method execution time. **Automatic timestamp**: The system provides a value created from a prefix with the current date and time appended.	Manual with default* I Automatic timestamp
Task description	Allows to define a label for each task ID field.	Text (0…32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This option only appears when the option **Manual with default** is activated.	Text (0…32 characters)
Prefix	Defines a prefix for the task ID. This option only appears when the option **Automatic timestamp** is activated.	Text (0…32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the value of the option **Number of result IDs** is larger than 0, the options **Result ID 1**, **Result description** and **Prefix/Default value** appear for every single result ID.	0 I 1* I 2
Result ID 1	Defines the naming type of the result ID. **Manual with default**: The value of the result ID can be entered manually at method execution time. **Automatic counter**: The system provides a value created from a prefix with an unique number (counter) appended.	Manual with default* I Automatic counter
Result description	Allows to define a label for each result ID.	Text (0...32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This option only appears when the corresponding result ID is set to **Manual with default**.	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This option only appears when the corresponding result ID is set to **Automatic counter**.	Text (0...32 characters)

* Factory setting

6.2.3.3 Weighing

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.
Weight capture mode	Defines the behavior when the button to add the result was tapped or the add result was triggered by the automatic weighing result creation. **Stable**: The system waits for a stable weight. **Immediate**: The system doesn't wait for a stable weight. The system waits for the defined amount of seconds (**Weight capture delay**). After the weight capture delay, the weight value from the weight stream is captured.	Stable* I Immediate
Weight capture delay	Defines the time in seconds the balance waits for capturing the weight after the button to add the result was tapped or the add result was triggered by the automatic weighing result creation. This option only appears when the **Weight capture mode** is set to **Immediate**.	Numeric (5 seconds* I 0...60 seconds)

* Factory setting

Statistics

Parameter	Description	Values
Activate statistics	If **Activate statistics** is set to **Active**, the following statistics will be calculated: **Count**: Number of items used for the statistics **Sum**: Sum of all value (decimal places and unit according to the method settings) **Minimum**: Smallest value (decimal places and unit according to the method settings) **Maximum**: Largest value (decimal places and unit according to the method setting) **Range**: Difference between the largest and smallest values (decimal places and unit according to the method settings) **Average**: The values are summed up and divided by the number of values, rounded to 1 digit more than the configured decimal places in the associated tolerance profile (unit according to the method settings) **Standard deviation**: Standard deviation rounded to 1 digit more than the configured decimal places in the associated tolerance profile (unit according to the method settings) **Relative standard deviation**: Relative standard deviation (rounded to 2 decimal places, in %) The statistical values are calculated and displayed as soon as a result is added or updated.	Active I Inactive*

* Factory setting

6.2.3.4 Weighing item

Initial values for weighing

Parameter	Description	Values
Reference PCS	Defines a reference unit quantity. This allows you to determine the reference unit weight with a defined, fixed number of pieces.	Numeric (10* I 1…10000)
Reference average weight	Defines the average weight for one piece. The average weight of one piece serves as basis for the piece counting. During task execution, the balance calculates the actual number of pieces on the weighing pan based on the measured weight and the average weight of one piece.	Numeric
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-tolerance	Defines the lower tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric
+tolerance	Defines the upper tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric

* Factory setting

See also

Creating a method "Piece counting" ▸ Page 40

6.2.3.5 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed. **Keyboard Input**: The data is written in the currently open input window. If no input window is open, the data is ignored. **Target weight value**: The barcode data is interpreted as a value for the target weight. **Task ID 1**: The received barcode data is treated as identification text for this task ID. **Result ID 1**: The received barcode data is treated as identification text for this result ID. The available items in the drop-down menu depend on the **Number of task IDs** and **Number of result IDs** specified for the method. Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	Keyboard Input* I Target weight value I Task ID 1 I Result ID 1 I …

* Factory setting

Weighing automation

Parameter	Description	Values
Automatic zero	If **Automatic zero** is set to **Active**, the balance automatically zeros the balance when the weight falls below a predefined threshold.	Active I Inactive*
Automatic zero threshold	Defines the threshold of the option **Automatic zero**. This option only appears when the option **Automatic zero** is activated.	Numeric
Tare Mode	Defines the tare mode. **None**: No automatic tare. **Automatic tare**: The balance stores automatically the first stable weight as the tare weight. **Preset tare**: Allows you to enter manually a numerical entry of a fixed tare weight.	None* I Automatic tare I Preset tare
Automatic tare threshold	Defines the threshold of the option **Tare Mode**. This value defines the minimum weight that must be applied to the weighing pan so that it is automatically stored as the tare weight. If the weight is below the limits, it is not automatically transferred to the tare memory. Instead of entering the weight, the lightest tare container can be placed on the weighing pan and the button subsequently pressed. The applied weight is directly taken over as a limit. This option only appears when the option **Tare Mode** is set to **Automatic tare**.	Numeric
Preset tare value	Defines a weight value for the pretare function. Instead of entering the value, the respective tare container can be placed on the weighing pan and the button subsequently pressed. The weight is directly taken over as pretare value. This option only appears when the option **Tare Mode** is set to **Preset tare**.	Numeric

Automatic result	Automatically generates a weighing result after a threshold is reached. **None**: No automatic result will be generated. **Without sample tare**: After a weight value that reached the threshold is being removed from the weighing pan, the balance is not being tared.	None* I Without sample tare
Automatic result threshold	Defines the threshold of the option **Automatic result**. The result is automatically added to the protocol only if the weight of the sample is larger than this threshold. This option only appears when the option **Automatic result** is activated.	Numeric
Weight trigger	Defines the behaviour of the option **Automatic result threshold**. **Exceeding**: The weighing result is generated when the weight exceeds the defined threshold. **Falling below**: The weighing result is generated when the weight falls below the defined threshold. This parameter is only available if **Automatic result** is set to **Without sample tare**.	Exceeding* I Falling below
Automatic tare after result	If set to **Active**, the balance is automatically tared when a result is added to the **Protocol**.	Active I Inactive*

* Factory setting

When using **Automatic result**, make sure that the **Reference average weight** of one piece is larger than the **Automatic result threshold**.

See also

Creating a method "Piece counting" ▶ Page 40

6.2.3.6 Print / Export

This section is divided into the following subsections:

- **Protocol printout and data export**
- **Label printout for task**
- **Label printout for weighing item**

Protocol printout and data export

Automatic data output

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the **Complete** button is tapped. The data to be transmitted to the printer can be defined in the section **Template settings**.	Active I Inactive*
Protocol export	Activates/Deactivates the automatic data export to a USB storage device when the **Complete** button is tapped.	Active I Inactive*
Weight value	Activates/Deactivates the option to automatically send the weighing value over USB or Ethernet when tapping **Add to protocol**.	Active I Inactive*

* Factory setting

Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

1 To deselect all check boxes at once, tap **Deselect all**

⇨ All parameters are set to **Inactive**.

2 To select all check boxes at once, tap **Select all**

⇨ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header* I Title* I Date/ time I Signature* I Separating lines* I Group titles
Balance information	Defines which information about the balance is being printed/ exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality information	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state
Task information	Defines which information about the task is being printed/export.	Method name I Method comment I Task IDs I Automatic result settingsl Count I Sum I Average I Minimum I Maximum I Standard deviation I Relative standard deviation I PCS below -Tolerance I PCS above +Tolerance
Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items I Result State* I Result IDs* I GWP Approved state I Level state* I MinWeigh state I Tolerance state* I Target and tolerances state* I Reference PCS I Reference average weight*
Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight* I Tare weight I Gross weight I Info weight I Date/time* I Stability

* Factory setting

Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to **Active**, the task label is automatically printed when tapping **Complete**.	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The number of label fields depends on the selected template.	Available entries depend on the method settings.

Barcode settings

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. The option **2D barcode delimiter** appears only when the selected **Used template** contains several 2D codes.	TAB I Form feed I Carriage return I Space I User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

Label printout for weighing items

Parameter	Description	Values
Automatic label printout for weighing item	When set to **Active**, the weighing item label is automatically printed when tapping **Add to protocol**.	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The number of label fields depends on the selected template.	Available entries depend on the method settings.

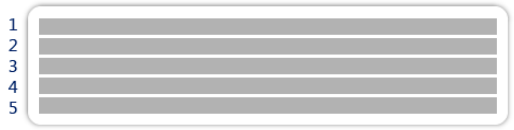
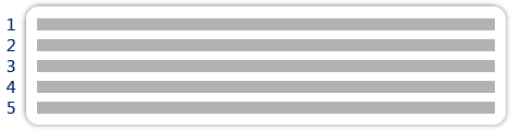
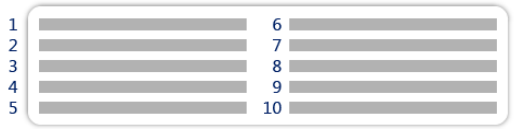
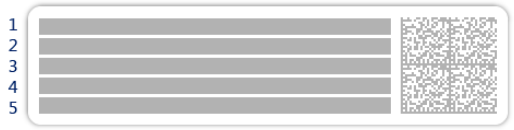
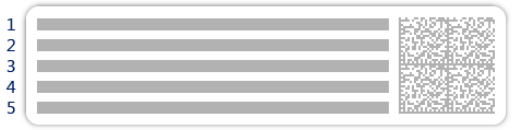
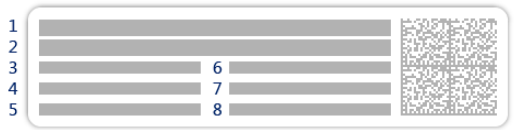
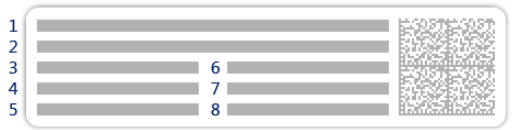
Barcode settings

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. The option **2D barcode delimiter** appears only when the selected **Used template** contains several 2D codes.	TAB I Form feed I Carriage return I Space I User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

Available Labels

The following label layouts can be selected:

 5 large fields	 5 small fields
 10 small fields	 1D barcode with 3 large fields
 1D barcode with 3 small fields	 1D barcode with 6 small fields
 2D barcode with 5 large fields	 2D barcode with 5 small fields
 2D barcode with 2 large fields and 6 small fields	 2D barcode with 8 small fields

6.2.4 Settings: method "Titration"

Navigation: Methods > Methods list > my titration > Edit

The settings of the method **Titration** are grouped as follows:

- **General**
- **ID format**
- **Weighing**
- **Weighing item**
- **Automation**
- **Print / Export**

See also

- Editing a method ▸ Page 44
- Creating a method "Titration" ▸ Page 42

6.2.4.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function **Method wizard**.	Text (1…22 characters)
Comment	The method can be described with a comment.	Text (0…128 characters)
Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

* Factory setting

6.2.4.2 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the value of the option **Number of task IDs** is larger than 0, the options **Task ID**, **Task description** and **Prefix/Default value** appear for every single task ID.	0 I 1* I 2
Task ID 1	Defines the naming type of the task ID. **Manual with default**: The value of the task ID can be entered manually at method execution time. **Automatic timestamp**: The system provides a value created from a prefix with the current date and time appended.	Manual with default* I Automatic timestamp
Task description	Allows to define a label for each task ID field.	Text (0…32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This option only appears when the option **Manual with default** is activated.	Text (0…32 characters)
Prefix	Defines a prefix for the task ID. This option only appears when the option **Automatic timestamp** is activated.	Text (0…32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the value of the option **Number of result IDs** is larger than 0, the options **Result ID 1**, **Result description** and **Prefix/Default value** appear for every single result ID.	0 I 1* I 2
Result ID 1	Defines the naming type of the result ID. **Manual with default**: The value of the result ID can be entered manually at method execution time. **Automatic counter**: The system provides a value created from a prefix with an unique number (counter) appended.	Manual with default* I Automatic counter
Result description	Allows to define a label for each result ID.	Text (0...32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This option only appears when the corresponding result ID is set to **Manual with default**.	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This option only appears when the corresponding result ID is set to **Automatic counter**.	Text (0...32 characters)

* Factory setting

6.2.4.3 Weighing

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.
Weight capture mode	Defines the behavior when the button to add the result was tapped or the add result was triggered by the automatic weighing result creation. **Stable**: The system waits for a stable weight. **Immediate**: The system doesn't wait for a stable weight. The system waits for the defined amount of seconds (**Weight capture delay**). After the weight capture delay, the weight value from the weight stream is captured.	Stable* I Immediate
Weight capture delay	Defines the time in seconds the balance waits for capturing the weight after the button to add the result was tapped or the add result was triggered by the automatic weighing result creation. This option only appears when the **Weight capture mode** is set to **Immediate**.	Numeric (5 seconds* I 0...60 seconds)

* Factory setting

Electrostatic

Parameter	Description	Values
Ionizer	Defines whether the ionizer is activated/deactivated.	Active I Inactive*

* Factory setting

See also

Creating a method "Titration" ▸ Page 42

6.2.4.4 Weighing item

Initial values for weighing

Parameter	Description	Values
Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-tolerance	Defines the lower tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric
+tolerance	Defines the upper tolerance limit. This option only appears when the option **Target weight** is activated.	Numeric

6.2.4.5 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed. **Keyboard Input**: The data is written in the currently open input window. If no input window is open, the data is ignored. **Target weight value**: The barcode data is interpreted as a value for the target weight. **Task ID 1**: The received barcode data is treated as identification text for this task ID. **Result ID 1**: The received barcode data is treated as identification text for this result ID. The available items in the drop-down menu depend on the **Number of task IDs** and **Number of result IDs** specified for the method. Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	Keyboard Input* I Target weight value I Task ID 1 I Result ID 1 I ...

Weighing automation

Automatic zero	If **Automatic zero** is set to **Active**, the balance automatically zeros the balance when the weight falls below a predefined threshold.	Active I Inactive*
Automatic zero threshold	Defines the threshold of the option **Automatic zero**. This option only appears when the option **Automatic zero** is activated.	Numeric
Tare Mode	Defines the tare mode. **None**: No automatic tare. **Automatic tare**: The balance stores automatically the first stable weight as the tare weight. **Preset tare**: Allows you to enter manually a numerical entry of a fixed tare weight.	None* I Automatic tare I Preset tare

Automatic tare threshold	Defines the threshold of the option **Tare Mode**. This value defines the minimum weight that must be applied to the weighing pan so that it is automatically stored as the tare weight. If the weight is below the limits, it is not automatically transferred to the tare memory. Instead of entering the weight, the lightest tare container can be placed on the weighing pan and the button subsequently pressed. The applied weight is directly taken over as a limit. This option only appears when the option **Tare Mode** is set to **Automatic tare**.	Numeric
Preset tare value	Defines a weight value for the pretare function. Instead of entering the value, the respective tare container can be placed on the weighing pan and the button subsequently pressed. The weight is directly taken over as pretare value. This option only appears when the option **Tare Mode** is set to **Preset tare**.	Numeric
Automatic result	Automatically generates a weighing result after a threshold is reached. **None**: No automatic result will be generated. **Without sample tare**: After a weight value that reached the threshold is being removed from the weighing pan, the balance is not being tared.	None* I Without sample tare
Automatic result threshold	Defines the threshold of the option **Automatic result**. The result is automatically added to the protocol only if the weight of the sample is larger than this threshold. This option only appears when the option **Automatic result** is activated.	Numeric
Weight trigger	Defines the behaviour of the option **Automatic result threshold**. **Exceeding**: The weighing result is generated when the weight exceeds the defined threshold. **Falling below**: The weighing result is generated when the weight falls below the defined threshold. This parameter is only available if **Automatic result** is set to **Without sample tare**.	Exceeding* I Falling below
Automatic tare after result	If set to **Active**, the balance is automatically tared when a result is added to the **Protocol**.	Active I Inactive*

* Factory setting

See also

Creating a method "Titration" ▸ Page 42

6.2.4.6 Print / Export

This section is divided into the following subsections:

- **Protocol printout and data export**
- **Label printout for task**
- **Label printout for weighing item**

Protocol printout and data export

Automatic data output

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the **Complete** button is tapped. The data to be transmitted to the printer can be defined in the section **Template settings**.	Active I Inactive*
Protocol export	Activates/Deactivates the automatic data export to a USB storage device when the **Complete** button is tapped.	Active I Inactive*
Weight value	Activates/Deactivates the option to automatically send the weighing value over USB or Ethernet when tapping **Add to protocol**.	Active I Inactive*

* Factory setting

Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

1 To deselect all check boxes at once, tap **Deselect all**

⇨ All parameters are set to **Inactive**.

2 To select all check boxes at once, tap **Select all**

⇨ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header* I Title* I Date/time I Signature* I Separating lines* I Group titles
Balance information	Defines which information about the balance is being printed/exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality information	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state
Task information	Defines which information about the task is being printed/export.	Method name I Method comment I Task IDs I Custom unit settings I Automatic result settings I Count I Sum I Average I Minimum I Maximum I Range I Standard deviation I Relative standard deviation

Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items I Result State I Result IDs* I GWP Approved state I Electrostatic charge I Level state I MinWeigh state I Tolerance state I Target and tolerances state
Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight* I Tare weight I Gross weight I Info weight I Date/time* I Stability

* Factory setting

Parameter	Description	Values
Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items I Result State* I Result IDs* I Density I Correction factor I GWP Approved state I Level state* I MinWeigh state I Tolerance state* I Target and tolerances state* I
Task information	Defines which information about the task is being printed/export.	Method name I Method comment I Task IDs I Automatic result settings I

Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to **Active**, the task label is automatically printed when tapping **Complete**.	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The number of label fields depends on the selected template.	Available entries depend on the method settings.

Barcode settings

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. The option **2D barcode delimiter** appears only when the selected **Used template** contains several 2D codes.	TAB I Form feed I Carriage return I Space I User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

Label printout for weighing items

Parameter	Description	Values
Automatic label printout for weighing item	When set to **Active**, the weighing item label is automatically printed when tapping **Add to protocol**.	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The number of label fields depends on the selected template.	Available entries depend on the method settings.

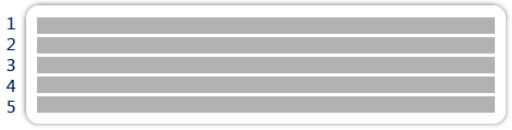
Barcode settings

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

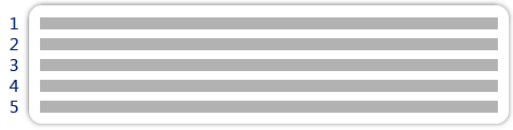
Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. The option **2D barcode delimiter** appears only when the selected **Used template** contains several 2D codes.	TAB I Form feed I Carriage return I Space I User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

Available Labels

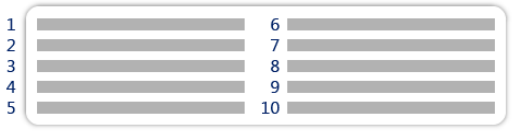
The following label layouts can be selected:



5 large fields



5 small fields

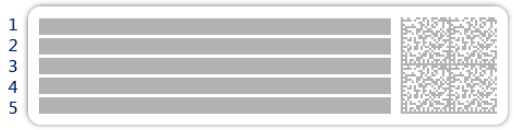
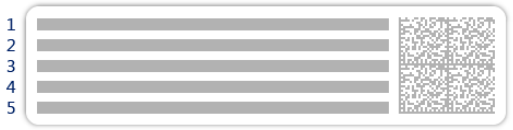
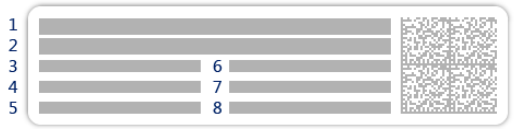
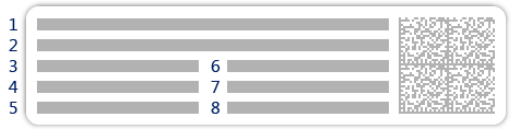


10 small fields

1D barcode with 3 large fields

1D barcode with 3 small fields

1D barcode with 6 small fields

 2D barcode with 5 large fields	 2D barcode with 5 small fields
 2D barcode with 2 large fields and 6 small fields	 2D barcode with 8 small fields

6.2.5 Settings: method "Density determination"

Navigation: Methods > Methods list > my density > Edit

The settings of the method **Density determination** are grouped as follows:

- **General**
- **Density**
- **ID format**
- **Weighing**
- **Weighing item**
- **Automation**
- **Print / Export**

See also

- Editing a method ▸ Page 44
- Creating a method "Density determination" ▸ Page 43

6.2.5.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function **Method wizard**.	Text (1…22 characters)
Comment	The method can be described with a comment.	Text (0…128 characters)

Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

* Factory setting

6.2.5.2 Density

The **Determination type** is defined in the wizard while creating the method and cannot be changed. If another **Determination type** is required, a new method must be created. All settings for all types of density determination are described here.

Parameter	Description	Values
Determination type	Defines the type of density determination measurement. **Solid** determines the density of a solid with the help of a density kit. **Liquid (sinker)**: determines the density of a liquid. **Liquid (pycnometer)**: determines the density of a liquid in a glass vessel like a pycnometer.	Liquid (pycnometer) I Liquid (sinker) I Solid*
Density unit	Defines the unit to be used for density determination. **g/cm3** = grams per cm^3. **kg/m3** = kilograms per m^3. **g/l** = grams per liter.	g/cm3* I kg/m3 I g/l
Density value decimal places	Defines the number of decimal places. The density determination result can be displayed and recorded with 1 to 5 decimal places.	1 I 2 I 3* I 4 I 5
Air density compensation	Defines the correction factor for force calibration. **Active** = the density determination result is corrected by the force calibration correction factor and mean air density. **Inactive** = no correction takes place.	Active* I Inactive

* Factory setting

See also

Creating a method "Density determination" ▶ Page 43

6.2.5.3 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the value of the option **Number of task IDs** is larger than 0, the options **Task ID**, **Task description** and **Prefix/Default value** appear for every single task ID.	0 I 1* I 2
Task ID 1	Defines the naming type of the task ID. **Manual with default**: The value of the task ID can be entered manually at method execution time. **Automatic timestamp**: The system provides a value created from a prefix with the current date and time appended.	Manual with default* I Automatic timestamp
Task description	Allows to define a label for each task ID field.	Text (0...32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This option only appears when the option **Manual with default** is activated.	Text (0...32 characters)

Prefix	Defines a prefix for the task ID. This option only appears when the option **Automatic timestamp** is activated.	Text (0…32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the value of the option **Number of result IDs** is larger than 0, the options **Result ID 1**, **Result description** and **Prefix/Default value** appear for every single result ID.	0 I 1* I 2
Result ID 1	Defines the naming type of the result ID. **Manual with default**: The value of the result ID can be entered manually at method execution time. **Automatic counter**: The system provides a value created from a prefix with an unique number (counter) appended.	Manual with default* I Automatic counter
Result description	Allows to define a label for each result ID.	Text (0…32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This option only appears when the corresponding result ID is set to **Manual with default**.	Text (0…32 characters)
Prefix	Defines a prefix for the result ID. This option only appears when the corresponding result ID is set to **Automatic counter**.	Text (0…32 characters)

* Factory setting

6.2.5.4 Weighing

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.
Weight capture mode	Defines the behavior when the button to add the result was tapped or the add result was triggered by the automatic weighing result creation. **Stable**: The system waits for a stable weight. **Immediate**: The system doesn't wait for a stable weight. The system waits for the defined amount of seconds (**Weight capture delay**). After the weight capture delay, the weight value from the weight stream is captured.	Stable* I Immediate
Weight capture delay	Defines the time in seconds the balance waits for capturing the weight after the button to add the result was tapped or the add result was triggered by the automatic weighing result creation. This option only appears when the **Weight capture mode** is set to **Immediate**.	Numeric (5 seconds* I 0…60 seconds)

* Factory setting

Statistics

Parameter	Description	Values
Activate statistics	If **Activate statistics** is set to **Active**, the following statistics will be calculated: **Count**: Number of items used for the statistics **Sum**: Sum of all value (decimal places and unit according to the method settings) **Minimum**: Smallest value (decimal places and unit according to the method settings) **Maximum**: Largest value (decimal places and unit according to the method setting) **Range**: Difference between the largest and smallest values (decimal places and unit according to the method settings) **Average**: The values are summed up and divided by the number of values, rounded to 1 digit more than the configured decimal places in the associated tolerance profile (unit according to the method settings) **Standard deviation**: Standard deviation rounded to 1 digit more than the configured decimal places in the associated tolerance profile (unit according to the method settings) **Relative standard deviation**: Relative standard deviation (rounded to 2 decimal places, in %) The statistical values are calculated and displayed as soon as a result is added or updated.	Active I Inactive*

* Factory setting

6.2.5.5 Weighing item

The weighing item settings are different between the three types of density determination. The settings for **Initial values for weighing** are presented for each type individually.

Initial values for weighing (Determination Type: Solid)

Parameter	Description	Values
Unit	Defines the unit.	The available units depend on the balance model.
Temperature	Defines the temperature of the solid.	Numeric (10°C.....30.9°C)
Aux. liquid	Defines the type of auxiliary liquid used for the determination of the density of a solid.	Distilled water* I Custom
Aux. liquid name	Defines the name of the custom liquid. This option only appears when **Aux. liquid** is set to **Custom**.	Text (0....32 character)
Aux. liquid density	Defines the liquid density of the custom liquid. This option only appears when **Aux. liquid** is set to **Custom**.	Numeric I 1.00000 g/cm3* (0.00001.....100 g/cm3)

* Factory setting

Initial values for weighing (Determination Type: Sinker)

Parameter	Description	Values
Unit	Defines the unit.	The available units depend on the balance model.

Temperature	Defines the temperature of the auxiliary liquid (distilled water or custom).	Numeric (10°C.....30.9°C)
Sinker volume	Defines the volume of the sinker in cm^3.	Numeric (0.0001.....500 cm3)

Initial values for weighing (Determination Type: Pycnometer)

Parameter	Description	Values
Unit	Defines the unit.	The available units depend on the balance model.
Temperature	Defines the temperature of the auxiliary liquid (distilled water or custom).	Numeric (10°C.....30.9°C)
Pycnometer volume	Defines volume of the pycnometer in cm^3.	Numeric (0.0001....10000 cm3)
Pycnometer weight	Defines the weight of the pycnometer.	Numeric (0.00001....222.009 g)

See also

Creating a method "Density determination" ▸ Page 43

6.2.5.6 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed. **Keyboard Input**: The data is written in the currently open input window. If no input window is open, the data is ignored. **Task ID 1**: The received barcode data is treated as identification text for this task ID. **Result ID 1**: The received barcode data is treated as identification text for this result ID. The available items in the drop-down menu depend on the **Number of task IDs** and **Number of result IDs** specified for the method. Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	Keyboard Input* I Task ID 1 I Result ID 1 I ...

* Factory setting

See also

Creating a method "Density determination" ▸ Page 43

6.2.5.7 Print / Export

Protocol printout and data export

Automatic data output

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the **Complete** button is tapped. The data to be transmitted to the printer can be defined in the section **Template settings**.	Active I Inactive*

* Factory setting

Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

1 To deselect all check boxes at once, tap **Deselect all**

⇨ All parameters are set to **Inactive**.

2 To select all check boxes at once, tap **Select all**

⇨ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header* I Title* I Date/time I Signature* I Separating lines* I Group titles
Balance information	Defines which information about the balance is being printed/exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality information	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state
Task information	Defines which information about the task is being printed/export.	Method name I Method comment I Task IDs I Count I Average I Minimum I Maximuml Standard deviation I Relative standard deviation I Type of density determination I Decimal places for density weighing results I Include air density compensation in calculation of density

Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items I Result State I Result IDs I GWP Approved state I Level state I MinWeigh state I Temperature I Auxiliary liquid name and density I Volume of sample I Weight of sample in air I Weight of sample in liquid
Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight* I Tare weight I Gross weight I Info weight I Date/time* I Stability

* Factory setting

6.3 Test weights settings

6.3.1 Settings: individual test weight

Navigation: Methods > Tests > Test weights > my weight 1 > Edit

Parameter	Description	Values
Test weight name	Defines the name of the test weight.	Text (1…22 characters)
Test weight ID	Defines the test weight ID.	Text (1…22 characters)
Nominal weight	Defines the approximate, rounded value of the **Actual weight**.	Numeric
Weight class	Defines the weight class according to OIML or ASTM. Alternatively, a customized tolerance class can be created with **Own**.	E1 I E2 I F1 I F2 I M1 I M2 I M3 I ASTM000 I ASTM00 I ASTM0 I ASTM0 I ASTM1 I ASTM2 I ASTM3 I ASTM4 I ASTM5 I ASTM6 I ASTM7 I Own*
Actual weight	Defines the actual weight. The actual weight is a specific weight with a specific Conventional Mass Value (CMV) from the weight calibration certificate.	Numeric
Next calibration date	Defines the next date for calibration.	Numeric
Certificate	If the certificate of the test weight is available, set to **Active** and fill in the additional parameters related to the certificate information (see below).	Active I Inactive*
Certificate ID	Defines the certificate ID. This option only appears when the option **Certificate ID** is set to **Active**.	Text (1…22 characters)
Certificate date	Defines the certificate date. This option only appears when the option **Certificate ID** is set to **Active**.	Date
Weight set ID	Defines the weight set ID.	Text (1…22 characters)

6.3.2 Settings: combined test weight

Navigation: Methods > Tests > Test weights > my weight 1+2 > Edit

Parameter	Description	Values
Test weight name	Defines the name of the test weight.	Text (1…22 characters)
Nominal weight	Shows the sum of the nominal weights of all the individual weights included in this combined weight.	Numeric
Minimal weight class	Defines the minimum weight class according to OIML or ASTM. The customized tolerance class **Own** can also be selected. When choosing the weights that compose the combined weight, only the individual weights with a class better or equal to the selected **Minimal weight class** are shown.	E1 I E2 I F1 I F2 I M1 I M2 I M3 I ASTM000 I ASTM00 I ASTM0 I ASTM0 I ASTM1 I ASTM2 I ASTM3 I ASTM4 I ASTM5 I ASTM6 I ASTM7 I Own*
Weights	Displays a list of the available individual test weights. A total of two or three individual test weights can be selected. Only the individual weights with a class better or equal to the selected **Minimal weight class** are shown.	List of individual test weights

6.4 Tests settings

6.4.1 Settings: eccentricity test

Navigation: Methods > Tests > my eccentricity test > Edit

1. Name and type

Parameter	Description	Values
Test type	The test type has been pre-defined and cannot be changed in this menu.	Available test types
Name	Defines the name of the test.	Text (1…22 characters)
Test activated	Enables/disables the test.	Active* I Inactive
Show preparation instructions	If activated, a predefined preparatory instruction is displayed in the test sequence.	Active* I Inactive
Automatic print	When activated test results are immediately printed after the test result has been calculated on the enabled printer.	Active I Inactive*

* Factory setting

2. Test specification

Parameter	Description	Values
Result calculation	Select whether the nominal weight or the conventional mass value (CMV) is used for the result calculation. **On nominal weight**: Nominal value of a weight with a specific weight class. **On actual weight (CMV)**: Conventional mass value (CMV) of a weight from the weight calibration certificate.	On nominal weight* I On actual weight (CMV)

* Factory setting

Test point

Parameter	Description	Values
Nominal weight	Defines the nominal value of the weight that will be used for the test.	Numeric

Weight class	Defines the weight class according to OIML or ASTM. Alternatively, a customized tolerance class can be created with **Own**.	E1 I E2 I F1 I F2 I M1 I M2 I M3 I ASTM000 I ASTM00 I ASTM0 I ASTM1 I ASTM2 I ASTM3 I ASTM4 I ASTM5 I ASTM6 I ASTM7 I Own*

* Factory setting

Eccentricity limits

Parameter	Description	Values
Control limit	Defines the control limit. The control limit is the error tolerance of a process with respect to its set value. Exceeding the control limit is a violation of quality requirements and therefore requires a correction of the process. Result if the control limit is exceeded: The test failed, the balance is out of specification.	Numeric I 0.2 %* (0.001 ... 100%)
Warning limit	Defines the warning limit. The warning limit is an upper or lower limit, which if exceeded or not reached, makes more stringent process monitoring necessary. The warning limit has to be smaller than the control limit. Result if the warning limit is exceeded: The test is passed, but the difference is higher than expected.	Numeric I (0.001 ... 100%)

* Factory setting

3. Test weights

A configured test weight can be selected. For information on test weights definition and settings, see [Test weights ▸ Page 46] and [Test weights settings ▸ Page 112].

4. Error management

Parameter	Description	Values
Block balance	Defines the behavior of the balance if a test has failed. **Active**: The balance will be blocked after a specified amount of failed tests. In this case, the balance cannot be used anymore until a user with the appropriate right unblocks the balance. **Inactive**: Blocking is not activated.	Active I Inactive*
Allowed number of retries	Defines the maximum allowed retries until the balance will be blocked.	Numeric (3* I 0...9)

* Factory setting

5. Test planning

Parameter	Description	Values
Planning type	Specifies the schedule for the test to be performed. **Manually**: The test must be performed manually. **Daily**: The test will be performed automatically every day at the specified time. **Weekly**: The test is performed automatically at least once a week. Additional days can be selected if required. **Monthly**: The test will be performed automatically every month at the specified day and time. **Quarterly**: The test will be performed automatically every three months at the specified time. **Annually**: The test will be performed automatically once a year at the specified time.	Manually* I Daily I Weekly I Monthly I Quarterly I Annually
Start time	Defines the start time for executing the task. This parameter is only available if XXXX	Time

* Factory setting

Notification

This section does not appear when the option **Planning type** is set to **Manually**.

Parameter	Description	Values
(x) hours before test	Defines the time period before the notification informs about the upcoming expiry date.	Different values depending on the selected frequency (Planning type).
Notification every (x) hours	Defines the time interval before the next notification is issued.	Different values depending on the selected frequency (Planning type).

Preferred days

This option only appears when the option **Planning type** is set to **Weekly**.

Parameter	Description	Values
Preferred days	Defines the preferred weekday for the execution of the test.	Monday* I Tuesday* I Wednesday* I Thursday* I Friday* I Saturday I Sunday

* Factory setting

Preferred day for execution

This section only appears when the option **Planning type** is set to **Monthly**.

Parameter	Description	Values
Day	Defines the preferred day for execution of the test.	None* I Monday I Tuesday I Wednesday I Thursday I Friday I Saturday I Sunday

Occurrence of day	Defines the occurrence of a given day of week within a month.	First* I Second I Third I Fourth This setting is only available if Day is not set to None.

* Factory setting

See also

- Defining an individual test weight ▸ Page 46
- Defining a combined test weight ▸ Page 46
- Creating a new test ▸ Page 48

6.4.2 Settings: repeatability test

Navigation: Methods > Tests > my repeatability test > Edit

1. Name and type

Parameter	Description	Values
Test type	The test type has been pre-defined and cannot be changed in this menu.	Available test types
Name	Defines the name of the test.	Text (1…22 characters)
Test activated	Enables/disables the test.	Active* I Inactive
Show preparation instructions	If activated, a predefined preparatory instruction is displayed in the test sequence.	Active* I Inactive
Automatic print	When activated test results are immediately printed after the test result has been calculated on the enabled printer.	Active I Inactive*

* Factory setting

2. Test specification

Parameter	Description	Values
Result calculation	Select whether the nominal weight or the conventional mass value (CMV) is used for the result calculation. **On nominal weight**: Nominal value of a weight with a specific weight class. **On actual weight (CMV)**: Conventional mass value (CMV) of a weight from the weight calibration certificate.	On nominal weight* I On actual weight (CMV)
Number of repetitions	Defines the number of weight measurements of a series.	Numeric 10* I (2…15)

* Factory setting

Tare

This section only appears when **Test type** is set to **Repeatab. - Tare - 1 TP**.

Parameter	Description	Values
Tare name	Defines a name for the tare weight.	Text (1…22 characters)
Minimum tare weight	Defines the minimum weight for the tare container. The test is only continued if a tare container with at least this weight is placed on the balance.	Numeric

* Factory setting

Test point

Parameter	Description	Values
Nominal weight	Defines the nominal value of the weight that will be used for the test.	Numeric
Weight class	Defines the weight class according to OIML or ASTM. Alternatively, a customized tolerance class can be created with **Own**.	E1 I E2 I F1 I F2 I M1 I M2 I M3 I ASTM000 I ASTM00 I ASTM0 I ASTM0 I ASTM1 I ASTM2 I ASTM3 I ASTM4 I ASTM5 I ASTM6 I ASTM7 I Own*

* Factory setting

Test limits

Parameter	Description	Values
Control limit	Defines the control limit. The control limit is the error tolerance of a process with respect to its set value. Exceeding the control limit is a violation of quality requirements and therefore requires a correction of the process. The minimum value is 40% of the balance readability. Result if the control limit is exceeded: The test failed, the balance is out of specification.	Numeric
Warning limit	Defines the warning limit. The warning limit is an upper or lower limit, which if exceeded or not reached, makes more stringent process monitoring necessary. The warning limit has to be smaller than the control limit. Result if the warning limit is exceeded: The test is passed, but the difference is higher than expected.	Numeric

* Factory setting

3. Test weights

A configured test weight can be selected. For information on test weights definition and settings, see [Test weights ▸ Page 46] and [Test weights settings ▸ Page 112].

4. Error management

Parameter	Description	Values
Block balance	Defines the behavior of the balance if a test has failed. **Active**: The balance will be blocked after a specified amount of failed tests. In this case, the balance cannot be used anymore until a user with the appropriate right unblocks the balance. **Inactive**: Blocking is not activated.	Active I Inactive*
Allowed number of retries	Defines the maximum allowed retries until the balance will be blocked.	Numeric (3* I 0…9)

* Factory setting

5. Test planning

Parameter	Description	Values
Planning type	Specifies the schedule for the test to be performed. **Manually**: The test must be performed manually. **Daily**: The test will be performed automatically every day at the specified time. **Weekly**: The test is performed automatically at least once a week. Additional days can be selected if required. **Monthly**: The test will be performed automatically every month at the specified day and time. **Quarterly**: The test will be performed automatically every three months at the specified time. **Annually**: The test will be performed automatically once a year at the specified time.	Manually* I Daily I Weekly I Monthly I Quarterly I Annually
Start time	Defines the start time for executing the task. This parameter is only available if XXXX	Time

* Factory setting

Notification

This section does not appear when the option **Planning type** is set to **Manually**.

Parameter	Description	Values
(x) hours before test	Defines the time period before the notification informs about the upcoming expiry date.	Different values depending on the selected frequency (Planning type).
Notification every (x) hours	Defines the time interval before the next notification is issued.	Different values depending on the selected frequency (Planning type).

Preferred days

This option only appears when the option **Planning type** is set to **Weekly**.

Parameter	Description	Values
Preferred days	Defines the preferred weekday for the execution of the test.	Monday* I Tuesday* I Wednesday* I Thursday* I Friday* I Saturday I Sunday

* Factory setting

Preferred day for execution

This section only appears when the option **Planning type** is set to **Monthly**.

Parameter	Description	Values
Day	Defines the preferred day for execution of the test.	None* I Monday I Tuesday I Wednesday I Thursday I Friday I Saturday I Sunday

Occurrence of day	Defines the occurrence of a given day of week within a month.	First* I Second I Third I Fourth This setting is only available if Day is not set to None.

* Factory setting

See also

- Defining an individual test weight ▸ Page 46
- Defining a combined test weight ▸ Page 46
- Creating a new test ▸ Page 48

6.4.3 Settings: sensitivity test

Navigation: Methods > Tests > my sensitivity test > Edit

1. Name and type

Parameter	Description	Values
Test type	The test type has been pre-defined and cannot be changed in this menu.	Available test types
Name	Defines the name of the test.	Text (1…22 characters)
Test activated	Enables/disables the test.	Active* I Inactive
Show preparation instructions	If activated, a predefined preparatory instruction is displayed in the test sequence.	Active* I Inactive
Automatic print	When activated test results are immediately printed after the test result has been calculated on the enabled printer.	Active I Inactive*

* Factory setting

2. Test specification

Parameter	Description	Values
Result calculation	Select whether the nominal weight or the conventional mass value (CMV) is used for the result calculation. **On nominal weight**: Nominal value of a weight with a specific weight class. **On actual weight (CMV)**: Conventional mass value (CMV) of a weight from the weight calibration certificate.	On nominal weight* I On actual weight (CMV)

* Factory setting

Tare

This section only appears when the option **Test type** is set to **Sensitivity - Tare - 1 TP** or **Sensitivity - Tare - 2 TP**.

Parameter	Description	Values
Tare name	Defines a name for the tare weight.	Text (1…22 characters)
Minimum tare weight	Defines the minimum weight for the tare container. The test is only continued if a tare container with at least this weight is placed on the balance.	Numeric

Test point

Depending on the selected test, the following options can be defined for one or two test points:

Parameter	Description	Values
Nominal weight	Defines the nominal value of the weight that will be used for the test.	Numeric
Weight class	Defines the weight class according to OIML or ASTM. Alternatively, a customized tolerance class can be created with **Own**.	E1 I E2 I F1 I F2 I M1 I M2 I M3 I ASTM000 I ASTM00 I ASTM0 I ASTM0 I ASTM1 I ASTM2 I ASTM3 I ASTM4 I ASTM5 I ASTM6 I ASTM7 I Own*
Control limit	Defines the control limit. The control limit is the error tolerance of a process with respect to its set value. Exceeding the control limit is a violation of quality requirements and therefore requires a correction of the process. Result if the control limit is exceeded: The test failed, the balance is out of specification.	Numeric I 0.2 %* (0.001 ... 100%)
Warning limit	Defines the warning limit. The warning limit is an upper or lower limit, which if exceeded or not reached, makes more stringent process monitoring necessary. The warning limit has to be smaller than the control limit. Result if the warning limit is exceeded: The test is passed, but the difference is higher than expected.	Numeric I (0.001 ... 100%)

* Factory setting

3. Test weights

A configured test weight can be selected. For information on test weights definition and settings, see [Test weights ▸ Page 46] and [Test weights settings ▸ Page 112].

4. Error management

Parameter	Description	Values
Block balance	Defines the behavior of the balance if a test has failed. **Active**: The balance will be blocked after a specified amount of failed tests. In this case, the balance cannot be used anymore until a user with the appropriate right unblocks the balance. **Inactive**: Blocking is not activated.	Active I Inactive*
Allowed number of retries	Defines the maximum allowed retries until the balance will be blocked.	Numeric (3* I 0...9)

* Factory setting

5. Test planning

Parameter	Description	Values
Planning type	Specifies the schedule for the test to be performed. **Manually**: The test must be performed manually. **Daily**: The test will be performed automatically every day at the specified time. **Weekly**: The test is performed automatically at least once a week. Additional days can be selected if required. **Monthly**: The test will be performed automatically every month at the specified day and time. **Quarterly**: The test will be performed automatically every three months at the specified time. **Annually**: The test will be performed automatically once a year at the specified time.	Manually* I Daily I Weekly I Monthly I Quarterly I Annually
Start time	Defines the start time for executing the task. This parameter is only available if XXXX	Time

* Factory setting

Notification

This section does not appear when the option **Planning type** is set to **Manually**.

Parameter	Description	Values
(x) hours before test	Defines the time period before the notification informs about the upcoming expiry date.	Different values depending on the selected frequency (Planning type).
Notification every (x) hours	Defines the time interval before the next notification is issued.	Different values depending on the selected frequency (Planning type).

Preferred days

This option only appears when the option **Planning type** is set to **Weekly**.

Parameter	Description	Values
Preferred days	Defines the preferred weekday for the execution of the test.	Monday* I Tuesday* I Wednesday* I Thursday* I Friday* I Saturday I Sunday

* Factory setting

Preferred day for execution

This section only appears when the option **Planning type** is set to **Monthly**.

Parameter	Description	Values
Day	Defines the preferred day for execution of the test.	None* I Monday I Tuesday I Wednesday I Thursday I Friday I Saturday I Sunday

Occurrence of day	Defines the occurrence of a given day of week within a month.	First* I Second I Third I Fourth This setting is only available if Day is not set to None.

* Factory setting

See also

- Defining an individual test weight ▶ Page 46
- Defining a combined test weight ▶ Page 46
- Creating a new test ▶ Page 48

6.5 Adjustments settings

Navigation: Methods > Adjustments > my internal adjustment > Edit

1. Strategy

Parameter	Description	Values
Strategy	Defines the adjustment method. When the options **No adjustment** or **External adjustment** are activated other options are not available.	Internal adjustment* I External adjustment I No adjustment
Automatic print	When activated adjustment results are immediately printed after the result has been calculated on the enabled strip printer.	Active I Inactive*

* Factory setting

2. Specification

Parameter	Description	Values
'As found' test	At the start of the adjustment sequence, an internal test (sensitivity) is performed to ascertain the current status. The input test has automatically started when the adjustment sequence is activated and the result is displayed and recorded.	Active I Inactive*
'As left' test	When the adjustment is complete, an internal test (sensitivity) is performed.	Active I Inactive*

* Factory setting

Limits

These settings only appear when one of the options **'As found' test** or **'As left' test** is activated.

Parameter	Description	Values
Control limit	Defines the control limit. The control limit is the error tolerance of a process with respect to its set value. Exceeding the control limit is a violation of quality requirements and therefore requires a correction of the process. Result if the control limit is exceeded: The adjustment failed, the balance is out of specification.	Numeric I 0.1 %* (0.001 ... 100%)
Warning limit	Defines the warning limit. The warning limit is an upper or lower limit, which if exceeded or not reached, makes more stringent process monitoring necessary. The warning limit has to be smaller than the control limit. Result if the warning limit is exceeded: The adjustment is passed, but the difference is higher than expected.	Numeric (0.001...100%)

* Factory setting

3. Error management

Parameter	Description	Values
Block balance	Defines the behavior of the balance if the adjustment has failed. **Active**: The balance will be blocked after the adjustment has failed. In this case, the balance can not be used anymore until a user with the appropriate right unblocks the balance. **Inactive**: The balance will not be blocked.	Active I Inactive*

* Factory setting

4. Planning

Parameter	Description	Values
Start after leveling	Defines if the internal adjustment starts after leveling.	Active I Inactive*
Start after temperature change	Defines if the internal adjustment starts automatically after a temperature change of 1°C.	Active I Inactive*
Schedule	Defines when the adjustment is being performed. It is possible to define several start times (1-3) per day. It can also be defined on what day/s the adjustment is being performed.	Inactive I 1 start time I 2 start times* I 3 start times
Start time 1	Defines the start time for execution of the task.	Time
Start time 2	Defines the start time for second execution of the task..	Time
Preferred days	Defines the days for the scheduled adjustments. This section only appears with a defined start time.	Monday I Tuesday I Wednesday I Thursday I Friday I Saturday I Sunday

* Factory setting

See also

- Defining an individual test weight ▸ Page 46
- Defining a combined test weight ▸ Page 46
- Editing an internal adjustment ▸ Page 55
- Editing an external adjustment ▸ Page 55

7 Maintenance

To guarantee the functionality of the balance and the accuracy of the weighing results, a number of maintenance actions must be performed by the user.

7.1 Maintenance tasks

Maintenance action	Recommended interval	Remarks
Performing an internal adjustment	• Daily • After cleaning • After leveling • After changing the location	see "Adjustments"
Performing routine tests (eccentricity test, repeatability test, sensitivity test). METTLER TOLEDO recommends to at least perform a sensitivity test.	• After cleaning • After assembling the balance • After a software update • Depending on your internal regulations (SOP)	see "Tests"
Cleaning	• After every use • After changing the substance • Depending on the degree of pollution • Depending on your internal regulations (SOP)	see "Cleaning"
Updating the software	• Depending on your internal regulations (SOP). • After a new software release.	see "Software update"

See also

- Adjustments ▸ Page 55
- Tests ▸ Page 47
- Cleaning ▸ Page 124
- Software update ▸ Page 128

7.2 Cleaning

7.2.1 Disassembling for cleaning

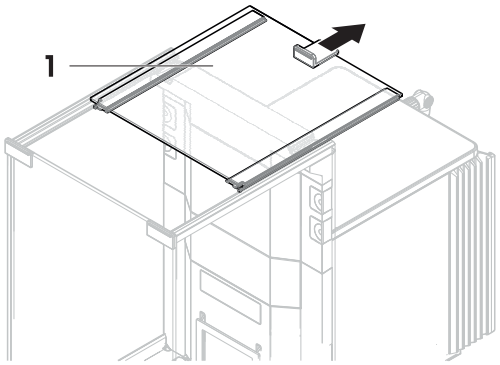
⚠ CAUTION

Injury due to sharp objects or broken glass

Instrument components, e.g., glass, can break and lead to injuries.

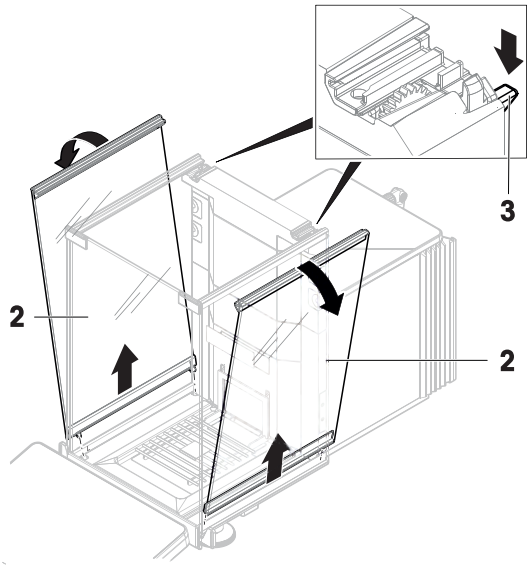
– Always proceed with focus and care.

1 Open the top door (1) and pull it all the way back, outside of the rails of the side doors. Shortly before the top panel drops out, you can feel a slight resistance. Just keep pulling a little bit tighter.

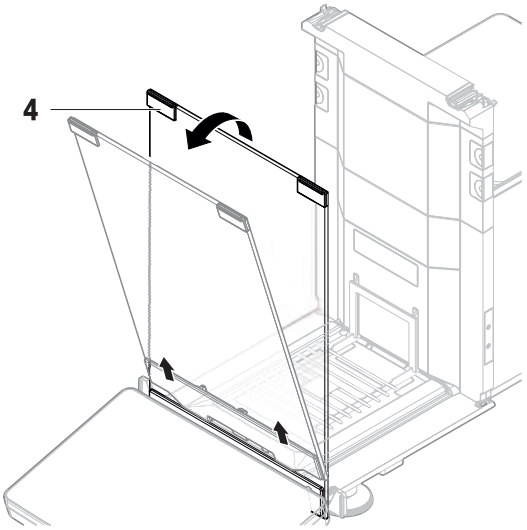


2 Hold the side doors (2) and push down the lever (3) to release them.

3 Carefully remove both side doors (2).



4 Tilt the front panel (4) to the front and remove it.

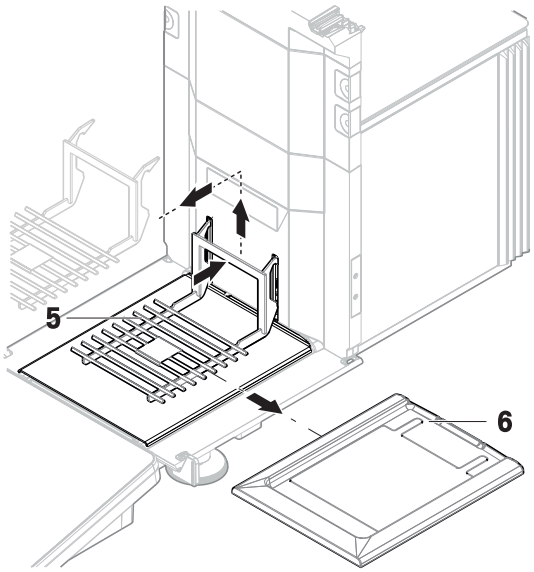


5 Carefully lift the weighing pan (5) to unhook it and pull it out.

6 Remove the drip tray (6).

7 Store all removed components in a safe place.

⇨ The balance is ready for cleaning.



7.2.2 Cleaning agents

In the following table, cleaning tool and cleaning agents recommended by METTLER TOLEDO are listed. Pay attention to the concentration of the agents specified in the table.

		Tools			Cleaning agents						
		Paper tissue	Brush	Dishwasher	Water	Acetone	Ethanol (70%)	Isopropanol (70%)	Hydrochloric acid (3-10%)	Sodium hydroxide (0.2-1.0 M)	Peracetic acid (2-3%)
Around the balance	Balance housing	✓	R	—	R	—	R	✓	R	R	R
	Feet	✓	R	—	R	—	R	✓	R	R	R
Balance terminal	Terminal	✓	R	—	✓	PR	R	R	R	R	R
	Display	✓	—	—	✓	PR	R	R	R	R	R
	Terminal cover	✓	R	—	✓	—	R	R	R	PR	PR
Balance draft shield	Glass panels	✓	R	R	R	PR	✓	✓	R	R	R
	Non-removable handles and frames	✓	R	—	R	PR	✓	✓	R	R	R
Weighing area	Weighing pan	R	R	✓	R	R	✓	✓	R	R	R
	Drip tray	R	R	✓	R	R	✓	✓	—	—	R

Legend

✓ Best recommendation by METTLER TOLEDO; can be used without limitation.

R Recommended by METTLER TOLEDO; can be used without limitation.

PR Partially recommended by METTLER TOLEDO: individual resistance to acid and alkali must be evaluated, including dependence to the time exposure.

— Not recommend. High risk for damage.

7.2.3 Cleaning the balance

NOTICE

Damage to the instrument due to inappropriate cleaning methods

If liquid enters the housing, it can damage the instrument. The surface of the instrument can be damaged by certain cleaning agents, solvents, or abrasives.

1 Do not spray or pour liquid on the instrument.
2 Only use the cleaning agents specified in the Reference Manual (RM) of the instrument or the guide "8 Steps to a Clean Balance".
3 Only use a lightly moistened, lint-free cloth or a tissue to clean the instrument.
4 Wipe off any spills immediately.

For further information on cleaning a balance, consult "8 Steps to a Clean Balance".

▶ www.mt.com/lab-cleaning-guide

Cleaning around the balance

– Remove any dirt or dust around the balance and avoid further contaminations.

Cleaning the terminal

– Clean the terminal with a damp cloth or a tissue and a mild cleaning agent.

Cleaning the removable parts

– Clean the removed part with a damp cloth or a tissue and a mild cleaning agent or clean in a dishwasher up to 80 °C.

Cleaning the weighing unit

1 Disconnect the balance from the AC/DC adapter.
2 Use a lint-free cloth moistened with a mild cleaning agent to clean the surface of the balance.
3 Remove powder or dust with a disposable tissue first.
4 Remove sticky substances with a damp lint-free cloth and a mild solvent, e.g., isopropanol or ethanol 70%.

7.2.4 Putting into operation after cleaning

1 Reassemble the balance.
2 Check that the draft shield doors (top, sides) open and close normally.
3 Check if the terminal is connected to the balance.
4 Reconnect the balance to the AC/DC adapter.
5 Check the level status, level the balance if necessary.
6 Respect the warm-up time specified in the "Technical Data".
7 Perform an internal adjustment.
8 Perform a routine test according to the internal regulations of your company. METTLER TOLEDO recommends to perform a sensitivity test after cleaning the balance.
9 Press →0← to zero the balance.

⇨ The balance is ready to be used.

See also

- Performing an internal adjustment ▸ Page 29
- Performing a sensitivity test ▸ Page 52
- Technical Data ▸ Page 132

7.3 Software update

Search for software downloads ▶ www.mt.com/labweighing-software-download

Please contact a METTLER TOLEDO service representative if you need support updating the software.
METTLER TOLEDO recommends saving the data on a storage device before updating the software.

Navigation: ⚙ Balance menu > Maintenance > Software update

See also

- Exporting data and settings ▸ Page 58

7.3.1 Updating the software

- A USB storage device containing the software installer (zip file format) is connected to the balance.

1 Tap ⚙ **Balance menu** > **Maintenance** > **Software update**
2 Select **Update software** and tap **→Next**.
⇨ An update wizard opens and will lead you step-by-step through the procedure.

7.3.2 Restoring the software to the previous version

The current software version can be rolled back to the previous software version.

1 Tap ⚙ **Balance menu** > **Maintenance** > **Software update**
2 Select **Restore the software to the previous version.** and tap **→ Next**
⇨ An update wizard opens and will lead you step-by-step through the procedure.

7.3.3 Putting into operation after software update

1 Press ⏻ to switch on the balance.
2 Check the level status, level the balance if necessary.
3 Perform an internal adjustment.
4 Perform a routine test according to the internal regulations of your company.
5 Press →0← to zero the balance.
⇨ The balance is ready to be used.

See also

- Performing an internal adjustment ▸ Page 29

8 Troubleshooting

Possible errors with their cause and remedy are described in the following chapter. If there are errors that cannot be corrected through these instructions, contact METTLER TOLEDO.

8.1 Error messages

Error message	Possible cause	Diagnostic	Remedy
Balance reset failed	Communication failure	–	Disconnect the power cable and reconnect after a few seconds.
The system has no valid date and time set	Low battery	–	Connect to the power outlet and let the battery charge for two to three days.
Weight cannot be determined	Data signal problems of electronics.	–	Disconnect the power cable and reconnect after a few seconds.
	Bad connection between the terminal and the weighing unit.	Check the cable for damage (kinked, twisted or broken pins).	Replace the terminal cable.
Cannot start adjustment	Initial zero was not reached when the balance was switched on.	–	Disconnect the power cable and reconnect after a few seconds.
Preventive performance optimization	The balance memory (RAM) is too ful.	–	Complete the current task. Disconnect the power cable and reconnect after a few seconds.

8.2 Error symptoms

Error symptom	Possible cause	Diagnostic	Remedy
The display is dark.	The instrument is on standby.	–	Switch on the instrument.
	There is no power	Check the connection to the AC/DC adapter and the power outlet.	Connect the weighing unit to the power outlet. See "Connecting the balance"
	The terminal is not connected to the instrument.	Check the terminal cable connection.	Connect the terminal cable to the instrument.
	The terminal cable is defective.	Check the cable for damage (kinked, twisted or broken pins).	Replace the terminal cable.
	The wrong AC/DC adapter is connected to the instrument.	Check it, see "Technical Data".	Use the correct AC/DC adapter.
	The AC/DC adapter is defective.	The LED on the AC/DC adapter does not turn on.	Replace the AC/DC adapter.
The value on the display oscillates.	Vibrations on the weighing bench, e.g., building vibrations, foot traffic	Place a beaker with water on the weighing bench. Vibrations cause ripples on the water surface.	Protect the weighing location against vibrations, e.g. with an absorber. Find a different weighing location.

Error symptom	Possible cause	Diagnostic	Remedy
	Draft due to untight draft shield and/or open window.	Check the draft shield for gaps.	Fix the draft shield. Close the window.
	The weighing sample is electrostatically charged.	Check if the weighing result is stable when using a test weight.	Increase the air humidity in the weighing chamber. Use an ionizer. See "Accessories".
	The location is not suitable for weighing.	–	Follow the requirements for the location. See "Selecting the location".
	Something is touching the weighing pan.	Check for touching parts or dirt.	Remove touching parts. Clean the balance.
The value on the display is drifting towards plus or minus.	The weighing sample absorbs moisture or evaporates moisture.	Check if the weighing result is stable when using a test weight.	Cover the weighing sample.
	The weighing sample is electrostatically charged.	Check if the weighing result is stable when using a test weight.	Increase the air humidity in the weighing chamber. Use an ionizer. See "Accessories".
	The weighing sample is warmer or colder than the air in the weighing chamber.	Check if the weighing result is stable when using an acclimatized test weight.	Bring the sample to room temperature.
	The balance has not yet warmed up.	–	Let the balance warm up. Adequate warm up time is specified in the "General data".
The display shows overload or underload.	The wrong weighing pan is installed.	Slightly lift or press the weighing pan to see if the weight appears on the display.	Install the proper weighing pan.
	No weighing pan is installed.	–	Install the proper weighing pan.
	Incorrect zero point at power on.	–	Disconnect the power cable and reconnect after a few seconds.
	The balance is not adjusted.	–	Perform a internal adjustment. See "Internal adjustment".
The draft shield front panel is not exactly 90° from the weighing platform	The draft shield front panel is not perfectly adjusted.	–	Contact METTLER TOLEDO representative to adjust the front panel.
The draft shield side doors are not exactly closed.	The draft shield side doors are not perfectly adjusted.	–	Contact METTLER TOLEDO representative to adjust the side doors.
The user interface responds slowly.	Too many results are included in the **Protocol** of a task.	Check the **Protocol** of every running and pending task.	Complete all tasks: For each task in the list of **Tasks**, select the task, tap **Continue task**, and tap **Complete**.

8.3 Putting into operation after fixing an error

After fixing an error, perform the following steps to put the balance into operation:

- Ensure that the balance is completely reassembled and cleaned.
- Reconnect the balance to the AC/DC adapter.

9 Technical Data

9.1 General data

Power supply

AC/DC adapter:	Primary: 100 – 240 V~ ± 10%, 50/60 Hz Secondary: 12 V DC, 5 A, LPS, SELV
Cable for AC/DC adapter:	3-core, with country-specific plug
Balance power consumption:	12 V DC ± 10%, 2.25 A
Polarity:	

Protection and standards

Overvoltage category:	II
Degree of pollution:	2
Standards for safety and EMC:	See Declaration of Conformity
Range of application:	Use only indoors in dry locations

Environmental conditions

The limit values apply when the balance is used under the following environmental conditions:

Height above mean sea level:	Up to 5000 m
Ambient temperature:	+10 – +30 °C
Temperature change, max.:	5 °C/h
Relative air humidity:	30 – 70%, non-condensing
Warm-up time:	At least **120 minutes** after connecting the balance to the power supply. When switched on from standby, the instrument is ready for operation immediately.

The balance can be used under the following environmental conditions. However, the weighing performances of the balance may be outside the limit values:

Ambient temperature:	+5 °C – +40 °C
Relative air humidity:	20% to max. 80% at 31 °C, decreasing linearly to 50% at 40 °C, non-condensing

The balance can be disconnected and stored in its packaging under the following conditions:

Ambient temperature:	-25 – +70 °C
Relative air humidity:	10 – 90%, non-condensing

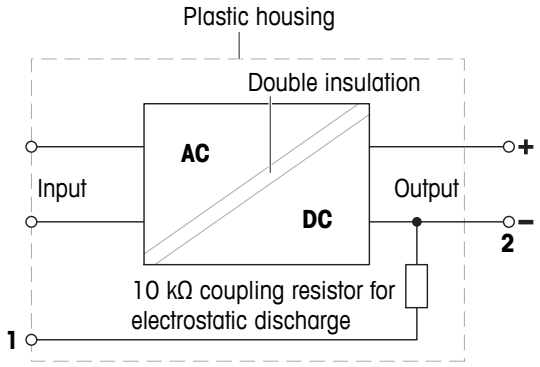
9.2 Explanatory notes for the METTLER TOLEDO AC/DC adapter

The certified external AC/DC adapter complies to the requirements for Class II double insulated equipment. It is not provided with a protective earth connection but with a functional earth connection for EMC purposes. This earth connection **is not** a safety feature. Further information about the compliance of our products can be found in the "Declaration of Conformity" delivered with every product.

In case of testing with regard to the European Directive 2001/95/EC, the AC/DC adapter and the instrument have to be handled as Class II double insulated equipment.

Consequently, a grounding test is not required. It is not necessary to carry out a grounding test between the earth connector of the power plug and any exposed part of the metallic housing of the instrument.

Because the instrument is sensitive to static charges, a leakage resistor of 10 kΩ is connected between the earth connector (**1**) and the negative pole (**2**) of the AC/DC adapter. The arrangement is shown in the equivalent circuit diagram. This resistor is not part of the electrical safety arrangement and does not require testing at regular intervals.



9.3 Model-specific data

	XSR105	XSR105DU	XSR205DU
Limit values			
Capacity	120 g	120 g	220 g
Nominal load	100 g	100 g	200 g
Readability	0.01 mg	0.1 mg	0.1 mg
Capacity of fine range	–	41 g	81 g
Readability in fine range	–	0.01 mg	0.01 mg
Repeatability (at nominal load)	0.04 mg	0.1 mg	0.1 mg
Repeatability (at 5% load)	0.02 mg	0.02 mg	0.02 mg
Linearity deviation	0.2 mg	0.2 mg	0.2 mg
Eccentricity deviation (at test load)	0.3 mg (50 g)	0.3 mg (50 g)	0.3 mg (100 g)
Sensitivity offset (at nominal load) ▲	0.4 mg	0.8 mg	0.8 mg
Sensitivity temperature drift	0.00015%/°C	0.00015%/°C	0.00015%/°C
Typical values			
Repeatability (at 5% load)	0.008 mg	0.01 mg	0.01 mg
Linearity deviation	0.06 mg	0.06 mg	0.06 mg
Eccentricity deviation (at test load)	0.1 mg (50 g)	0.1 mg (50 g)	0.1 mg (100 g)
Sensitivity offset (at nominal load) ▲	0.08 mg	0.2 mg	0.16 mg
Minimum weight (USP, tolerance = 0.10%) ▼	16 mg	20 mg	20 mg
Minimum weight (tolerance = 1%) ▼	1.6 mg	2 mg	2 mg
Settling time	3 s	1.5 s	1.5 s
Dimensions and other specifications			
Balance dimensions (W × D × H)	195 × 456 × 292 mm	195 × 456 × 292 mm	195 × 456 × 292 mm
Weighing pan dimensions (W × D)	78 × 73 mm	78 × 73 mm	78 × 73 mm
Usable height of draft shield	235 mm	235 mm	235 mm
Balance weight	8.6 kg	8.6 kg	8.6 kg
Weights for routine testing			
Weights (OIML class)	100 g (F2) / 5 g (F2)	100 g (F2) / 5 g (F2)	200 g (F2) / 10 g (F2)
Weights (ASTM class)	100 g (ASTM 1) / 5 g (ASTM 1)	100 g (ASTM 1) / 5 g (ASTM 1)	200 g (ASTM 1) / 10 g (ASTM 1)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

	XSR225DU	XSR64	XSR104
Limit values			
Capacity	220 g	61 g	120 g
Nominal load	200 g	60 g	100 g
Readability	0.1 mg	0.1 mg	0.1 mg
Capacity of fine range	121 g	–	–
Readability in fine range	0.01 mg	–	–
Repeatability (at nominal load)	0.1 mg	0.1 mg	0.1 mg
Repeatability (at 5% load)	0.02 mg	0.07 mg	0.07 mg
Linearity deviation	0.2 mg	0.2 mg	0.2 mg
Eccentricity deviation (at test load)	0.3 mg (100 g)	0.15 mg (20 g)	0.3 mg (50 g)
Sensitivity offset (at nominal load) ▲	0.8 mg	0.6 mg	1 mg
Sensitivity temperature drift	0.00015%/°C	0.00015%/°C	0.00015%/°C
Typical values			
Repeatability (at 5% load)	0.01 mg	0.04 mg	0.04 mg
Linearity deviation	0.06 mg	0.06 mg	0.06 mg
Eccentricity deviation (at test load)	0.1 mg (100 g)	0.05 mg (20 g)	0.1 mg (50 g)
Sensitivity offset (at nominal load) ▲	0.16 mg	0.12 mg	0.2 mg
Minimum weight (USP, tolerance = 0.10%) ▼	20 mg	82 mg	82 mg
Minimum weight (tolerance = 1%) ▼	2 mg	8.2 mg	8.2 mg
Settling time	1.5 s	1.5 s	1.5 s
Dimensions and other specifications			
Balance dimensions (W × D × H)	195 × 456 × 292 mm	195 × 456 × 292 mm	195 × 456 × 292 mm
Weighing pan dimensions (W × D)	78 × 73 mm	78 × 73 mm	78 × 73 mm
Usable height of draft shield	235 mm	235 mm	235 mm
Balance weight	8.6 kg	8.6 kg	8.6 kg
Weights for routine testing			
Weights (OIML class)	200 g (F2) / 10 g (F2)	50 g (F2) / 2 g (F2)	100 g (F2) / 5 g (F2)
Weights (ASTM class)	200 g (ASTM 1) / 10 g (ASTM 1)	50 g (ASTM 1) / 2 g (ASTM 1)	100 g (ASTM 1) / 5 g (ASTM 1)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

	XSR204	XSR204DR	XSR304
Limit values			
Capacity	220 g	220 g	320 g
Nominal load	200 g	200 g	300 g
Readability	0.1 mg	1 mg	0.1 mg
Capacity of fine range	–	81 g	–
Readability in fine range	–	0.1 mg	–
Repeatability (at nominal load)	0.1 mg	0.7 mg	0.1 mg
Repeatability (at 5% load)	0.07 mg	0.1 mg	0.08 mg
Linearity deviation	0.2 mg	0.5 mg	0.3 mg
Eccentricity deviation (at test load)	0.3 mg (100 g)	0.3 mg (100 g)	0.3 mg (100 g)
Sensitivity offset (at nominal load) ▲	1 mg	1 mg	1 mg
Sensitivity temperature drift	0.00015%/°C	0.00015%/°C	0.00015%/°C
Typical values			
Repeatability (at 5% load)	0.04 mg	0.04 mg	0.04 mg
Linearity deviation	0.06 mg	0.15 mg	0.1 mg
Eccentricity deviation (at test load)	0.1 mg (100 g)	0.1 mg (100 g)	0.1 mg (100 g)
Sensitivity offset (at nominal load) ▲	0.24 mg	0.24 mg	0.24 mg
Minimum weight (USP, tolerance = 0.10%) ▼	82 mg	82 mg	82 mg
Minimum weight (tolerance = 1%) ▼	8.2 mg	8.2 mg	8.2 mg
Settling time	1.5 s	1.5 s	1.5 s
Dimensions and other specifications			
Balance dimensions (W × D × H)	195 × 456 × 292 mm	195 × 456 × 292 mm	195 × 456 × 292 mm
Weighing pan dimensions (W × D)	78 × 73 mm	78 × 73 mm	78 × 73 mm
Usable height of draft shield	235 mm	235 mm	235 mm
Balance weight	8.6 kg	8.6 kg	8.6 kg
Weights for routine testing			
Weights (OIML class)	200 g (F2) / 10 g (F2)	200 g (F2) / 10 g (F2)	200 g (F2) / 10 g (F2)
Weights (ASTM class)	200 g (ASTM 1) / 10 g (ASTM 1)	200 g (ASTM 1) / 10 g (ASTM 1)	200 g (ASTM 1) / 10 g (ASTM 1)

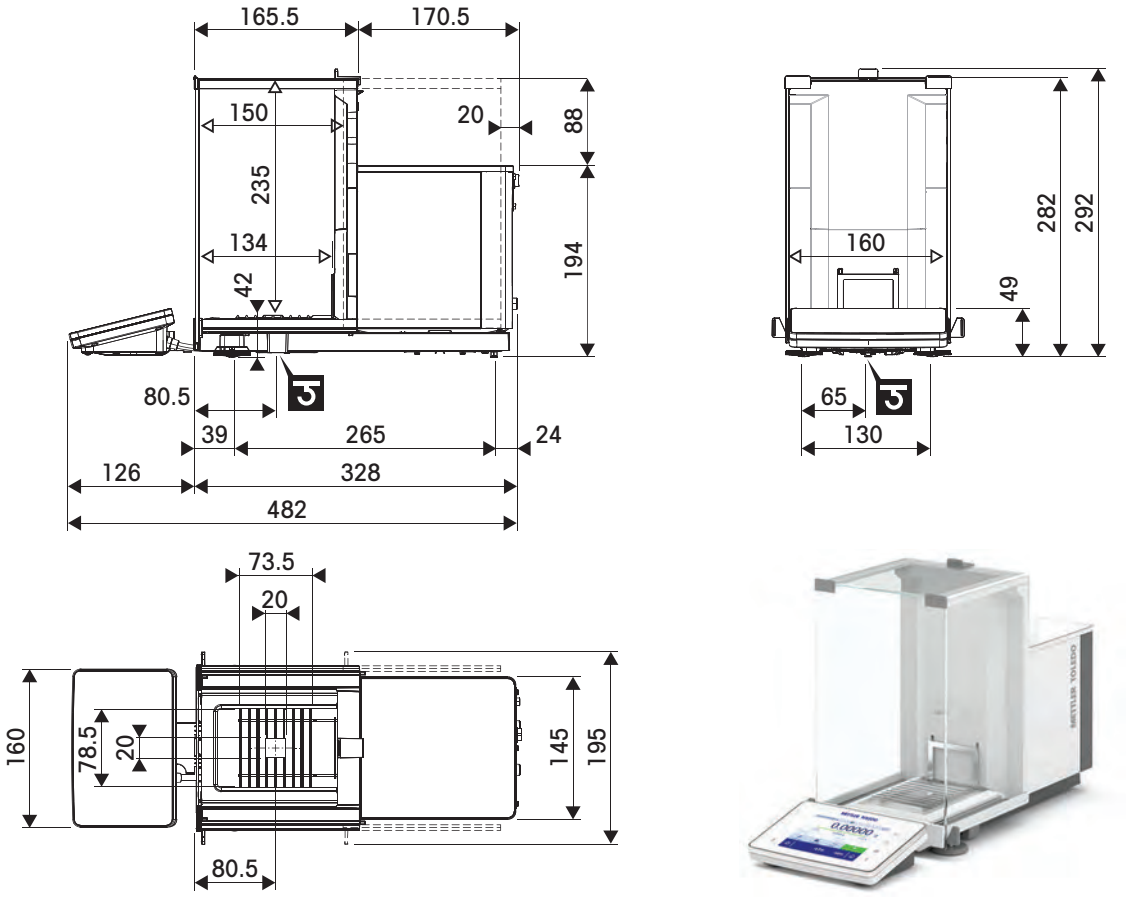
▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.4 Dimensions

9.4.1 XSR analytical balances

Models: XSR105, XSR105DU, XSR205DU, XSR225DU, XSR64, XSR104, XSR204, XSR204DR, XSR304



◀——▶	Outer dimensions [mm]
◁——▷	Clear dimensions [mm]
⅁	Position of the weighing hook axle

10 Disposal

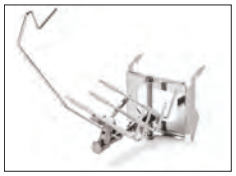
In conformance with the European Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.

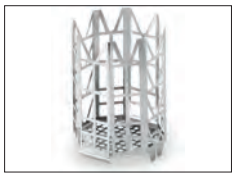
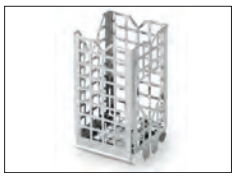
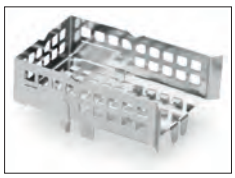
Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. If you have any questions, please contact the responsible authority or the distributor from which you purchased this device. Should this device be passed on to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

11 Accessories and Spare Parts

11.1 Accessories

Accessories are additional components that could help you in your workflow.

	Description	Part No.
Weighing pans		
	SmartGrid cover	11106709
	Single-use aluminium weighing pans, 10 units	11106711
ErgoClips		
	ErgoClip Stand	11140170
	ErgoClip filter holder	30460844
	ErgoClip flask, small	30460854
	ErgoClip flask	30460842
	ErgoClip syringe	30460859

	ErgoClip tube	30460853
	SmartPrep, single-use funnel for quick and easy sample preparation. For flask sizes 10/19, 12/21, 14/23. 50 pcs	30061260
	ErgoClip Titration Basket	11106883
	ErgoClip Basket	11106747
	ErgoClip Weighing Boat	11106748
	ErgoClip Round-Bottom Flask	11106746

Pipette calibration

	SmartCheck Trap 50 ml, > 20 - 2000 µl	30215436
	Evaporation trap 100 ml	30460847
	Evaporation trap 6/20 ml	30460843

Antistatic kits

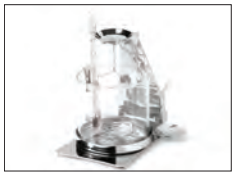
Compact ionizer with stand (USB) 30499859

Additional compact ionizer (USB) for Compact ionizer with stand (30499859) 30496446

Filter kits

Filter kit 30460857

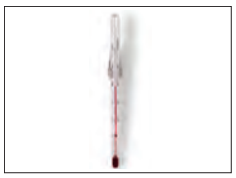
Density determination



Density kit 30460852

Sinker 10 mL 210260

Calibrated Sinker 10mL 210672



Calibrated Thermometer 11132685

Printers

P-52RUE dot matrix printer RS232C, USB and Ethernet connections, simple print-outs 30237290

Paper roll (length: 20 m), set of 5 pcs	00072456
Paper roll (length: 13 m), self-adhesive, set of 3 pcs	11600388
Ribbon cartridge, black, set of 2 pcs	00065975

P-56RUE thermal printer with RS232C, USB and Ethernet connections, simple print-outs, date and time — 30094673

Paper roll, white (length: 27 m), set of 10 pcs — 30094723

Paper roll, white, self-adhesive (length: 13 m), set of 10 pcs — 30094724

P-58RUE thermal printer with RS232C, USB and Ethernet connections, simple print-outs, date and time, label printing, balance applications, e.g., statistics, formulation, totaling — 30094674

Paper roll, white (length: 27 m), set of 10 pcs — 30094723

Paper roll, white, self-adhesive (length: 13 m), set of 10 pcs — 30094724

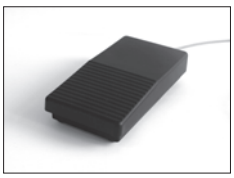
Paper roll, white, self-adhesive labels (550 labels), set of 6 pcs — 30094725

Dimension of the label 56×18 mm

Anti-theft devices

Anti-theft cable with lock — 11600361

Hands-free accessories



Foot switch, optional switch for remote operation (USB connection) — 30312558

ErgoSens, optical sensor for remote operation (USB connection) — 30300915

Barcode readers

Corded USB barcode reader — 30417466

Cables for RS232C interfaces

USB-RS232 cable (to connect a balance via RS232C to a USB port) — 64088427

USB-RS232 cable with integrated null modem to connect peripherals and computers via RS232C to an XPR/XSR balance — 30576241

Wireless interfaces

Bluetooth RS232C serial adapter ADP-BT-S for wireless connection between: — 30086494

- Balance and PC (depending on the balance model)
- Printer and balance

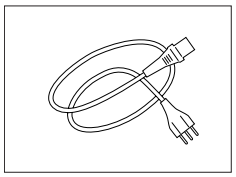
Bluetooth USB adapter for wireless connection to P-5x printer (additional Bluetooth RS232 serial adapter 30086494 required) — 30416089

Weighing tables

Weighing table — 11138042

Power supplies

AC/DC adapter (without power cable) 100–240 V AC, 0.8 A, 50/60 Hz, 12 V DC 2.5 A — 30388323



Country-specific 3-Pin power cable with grounding conductor.

Power cable AU	00088751
Power cable BR	30015268
Power cable CH	00087920
Power cable CN	30047293
Power cable DK	00087452
Power cable EU	00087925
Power cable GB	00089405
Power cable IL	00225297
Power cable IN	11600569
Power cable IT	00087457
Power cable JP	11107881
Power cable TH, PE	11107880
Power cable US	00088668
Power cable ZA	00089728

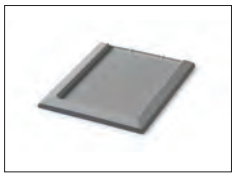
Software

LabX Balance Express — 11153120
Stand-alone system, includes one balance license.

LabX Balance Server — 11153121
Client server system, includes one balance license.

LabX Balance single (additional) instrument license — 11153220

Various



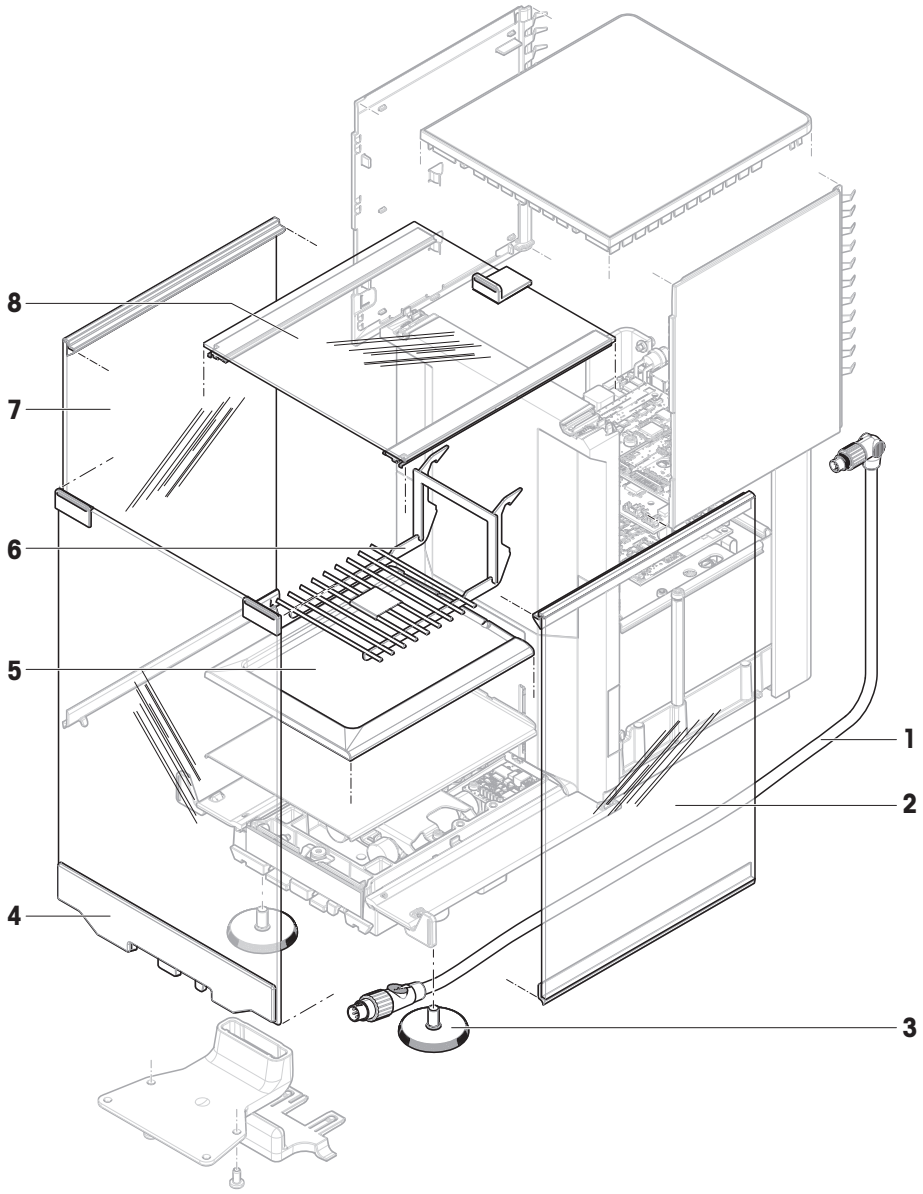
Drip pan, gray — 30460856

Terminal cable, extended, length: 4.5 m — 30300920

11.2 Spare parts

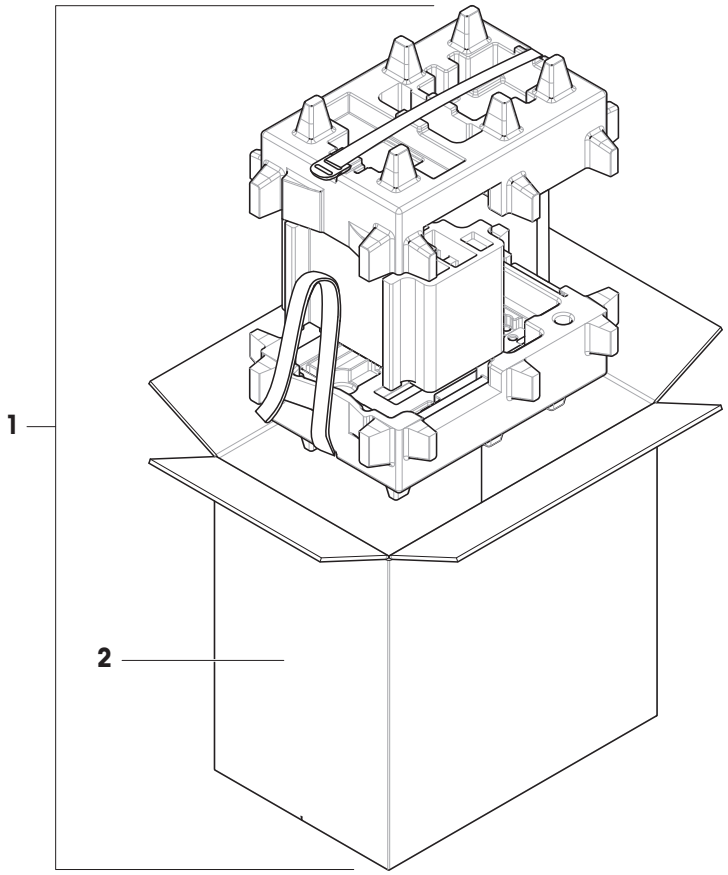
Spare parts are parts that are delivered with the original instrument but that can be replaced, if needed, without the help of a service technician.

11.2.1 Weighing chamber



	Order no.	Designation	Remarks
1	30416123	Cable terminal	–
2	30459875	Door right high draft shield	–
3	30460287	Leveling feet, set	Including: 2 leveling feet
4	30459877	Panel front high draft shield	–
5	30460282	Drip Tray XSR	–
6	30460285	Weighing pan SmartGrid XPR XSR	–
7	30459874	Door left high draft shield	–
8	30459876	Door top draft shield	–

11.2.2 Packaging



	Order no.	Designation	Remarks
1	30460297	Packaging	Including: Export box, inner protection material
2	30460298	Export box	Excluding: Inner protection material

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Good Weighing Practice™

GWP® is the global weighing standard, ensuring consistent accuracy of weighing processes, applicable to all equipment from any manufacturer It helps to:

- Choose the appropriate balance or scale
- Calibrate and operate your weighing equipment with security
- Comply with quality and compliance standards in laboratory and manufacturing

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