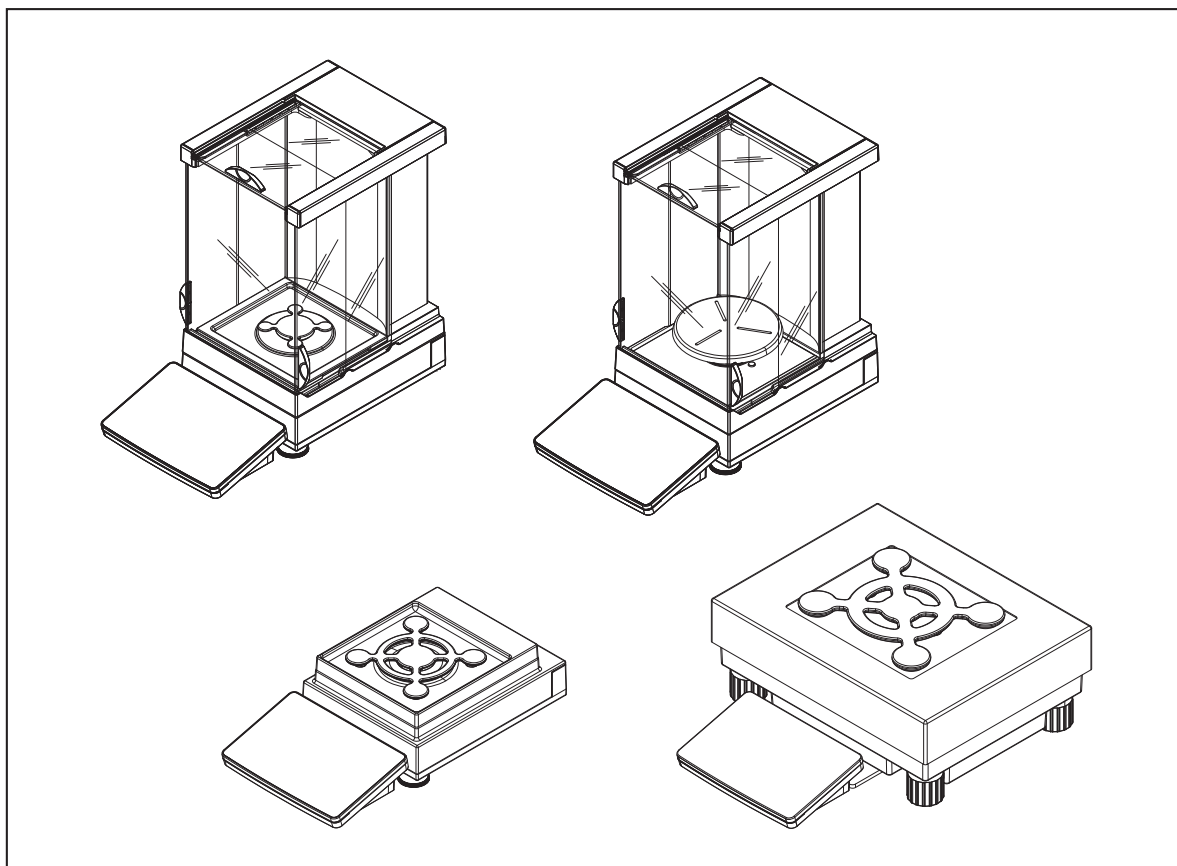


Precision Balances and Comparators

XPR models



METTLER TOLEDO

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1 Introduction

Thank you for choosing a METTLER TOLEDO balance.

The balances of the XPR line combine a large number of weighing and adjustment possibilities with exceptionally convenient operation.

The XPR line comprises a range of balances which differ from each other in relation to their weighing range and resolution.

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

- Fully automatic adjustment using internal weights.
- Built-in level sensor and leveling aid for fast and easy leveling.
- 7 inch capacitive color TFT touchscreen.
- Different methods that can be defined individually.
- Different routine tests that can be defined individually.
- Functions to manage and define user groups and user rights.
- Functions to collect data such as settings that have been changed or objects that have been deleted/added.

Disclaimer for comparators

In this document "balance" is a terminology preamble and stands for comparators.

Comparators are characterized by their higher resolution compared to balances and are mainly used for differential weighing application, such as the calibration of standard weights. Beside standard balance tests, comparators have also been tested with differential repeatability (ABA repeatability) during production.

This information is valid for models of the line/s:

XPR2004SC	XPR26003LC
XPR5004SC	XPR32003LD5C
XPR2003SC	XPR64003LD5C
XPR5003SC	XPR64002LC
XPR10003SC	

Software version

These operating instructions refer to the originally installed firmware (software) version V 2.01

Finding more information

▶ www.mt.com/balances

▶ www.mt.com/comparators

▶ www.mt.com/library


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

▶ www.mt.com/contact

1.1 Conventions and symbols used in these operating instructions



Refers to an external document.

Key and/or button designations and display texts are shown in graphic or bold text (e.g. , **Balance menu**).

Note (no symbol)
for useful information about the product.

These symbols indicate an instruction:

- prerequisites
- 1 steps
- 2 ...
- ⇒ results

2 Safety Information

- Read and understand the information in these Operating Instructions before you use the instrument.
- Keep these Operating Instructions for future reference.
- Include these Operating Instructions if you pass on the instrument to other parties.

If the instrument is not used according to the information in these Operating Instructions or if it is modified, the safety of the instrument may be impaired and Mettler-Toledo GmbH assumes no liability.

2.1 Definition of signal warnings and symbols

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

WARNING for a hazardous situation with medium risk, possibly resulting in death or severe injury if not avoided.

CAUTION for a hazardous situation with low risk, resulting in minor or moderate injury if not avoided.

NOTICE for a hazardous situation with low risk, resulting in damage to the instrument, other material damage, malfunctions and erroneous results, or loss of data.



General hazard



Electrical shock

2.2 Product safety information

Intended use

This balance is designed to be used in laboratories by trained staff. The balance is intended for weighing purposes.

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

General safety information

This balance complies with current industry standards and the recognized safety regulations; however, it can constitute a hazard in use. Do not open the balance housing: The balance contains no user-serviceable parts. In the event of problems, please contact a METTLER TOLEDO representative.

Always operate and use your instrument only in accordance with the instructions contained in this document. The instructions for setting up your new instrument must be strictly observed.

If the instrument is not used according to the Operating Instructions, protection of the instrument may be impaired and METTLER TOLEDO assumes no liability.

Staff safety

This printed document must be read and understood before using the balance. This printed document must be retained for future reference.

The balance must not be altered or modified in any way. Only use METTLER TOLEDO original spare parts and accessories.

Safety notes



WARNING

Danger of death or serious injury due to electric shock!

Contact with parts that contain a live current can lead to injury and death. If the balance cannot be shut down in an emergency situation, people can be injured or the balance can be damaged.

- 1 Only use the original universal AC/DC adapter delivered with your balance.
- 2 Check that the voltage printed on the balance is the same as your local power supply voltage.
 - ⇒ If this is not the case, under no circumstances connect the AC/DC adapter to the power supply, but contact a METTLER TOLEDO representative.
- 3 Only plug the adapter into a socket which is grounded.



NOTICE

Damage to the balance due to wrong usage.

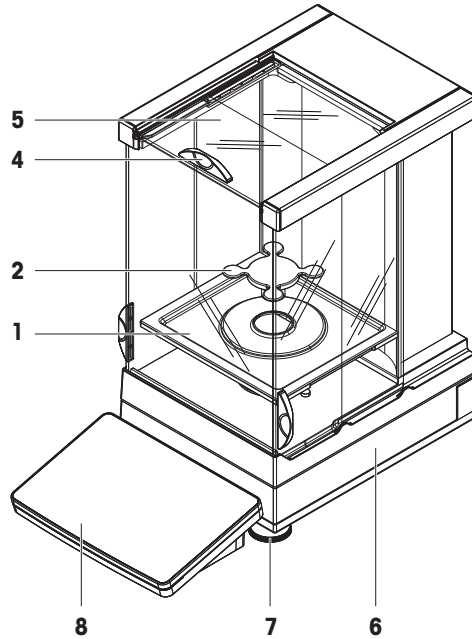
- 1 Only use indoors in dry locations.
- 2 Do not use pointed objects to operate the touchscreen.
- 3 Only use original METTLER TOLEDO accessories and peripheral devices.
- 4 Do not open the balance housing. It contains no user-serviceable parts. Contact a METTLER TOLEDO representative in case of any issue.

3 Design and Function

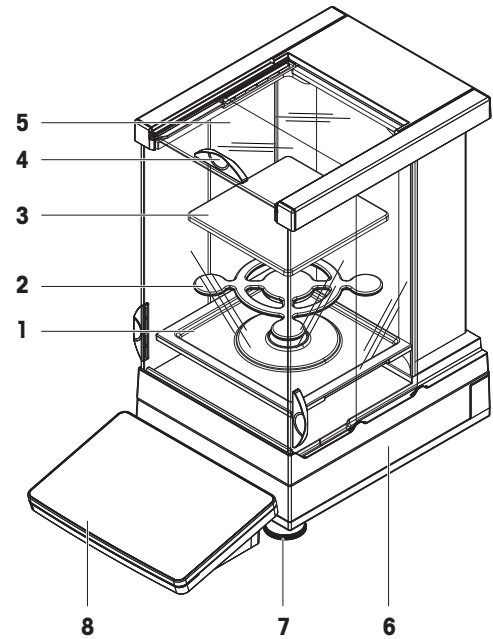
3.1 Overview S weighing platform

3.1.1 Balances with Pro Draft Shield

0.1 mg



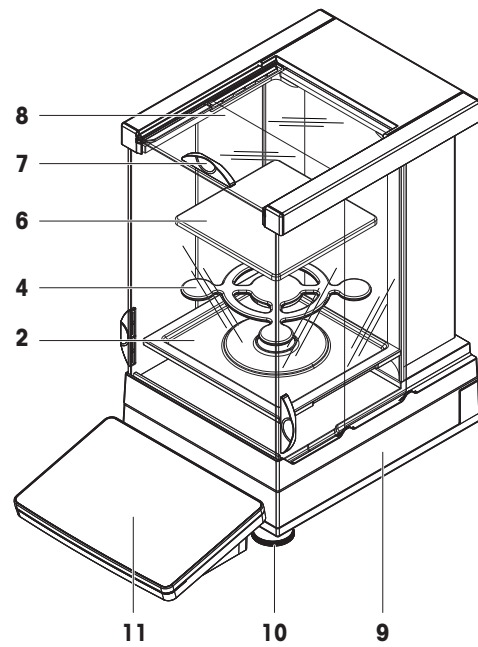
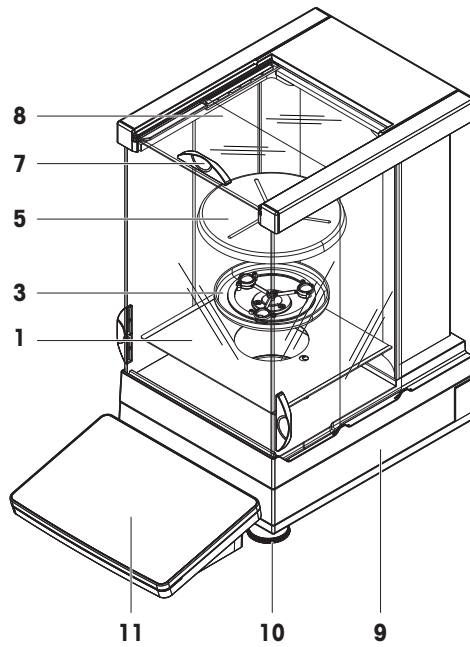
1 mg



1	DripTray	5	Pro Draft Shield
2	SmartPan weighing pan	6	Weighing platform with protective cover
3	Weighing pan	7	Leveling foot
4	Pro Draft Shield door handler	8	Terminal with protective cover

3.1.2 Comparators with Pro Draft Shield

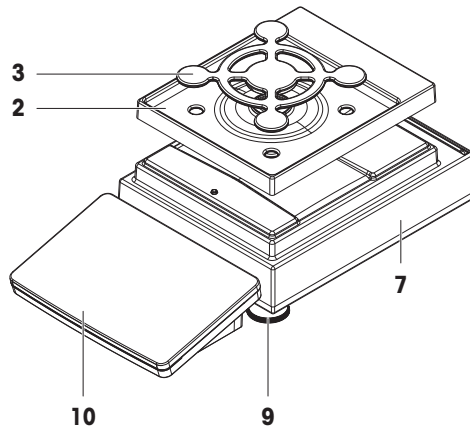
0.1 mg / 1 mg



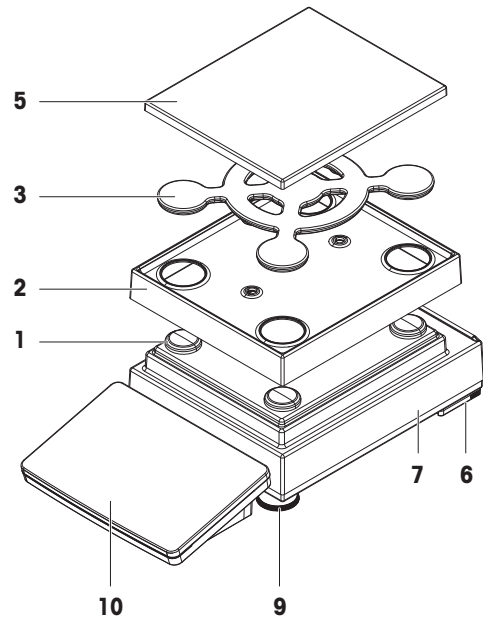
1	Bottom plate	7	Pro Draft Shield door handler
2	DripTray	8	Pro Draft Shield
3	LevelMatic weighing pan holder	9	Weighing platform with protective cover
4	SmartPan weighing pan	10	Leveling foot
5	LevelMatic weighing pan	11	Terminal with protective cover
6	Weighing pan		

3.1.3 Balances without Pro Draft Shield

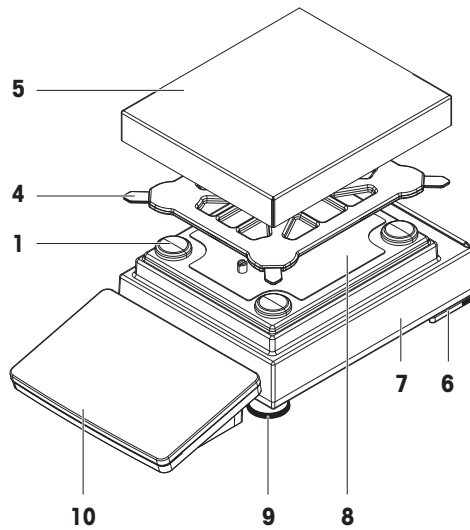
1 mg



5 mg / 10 mg

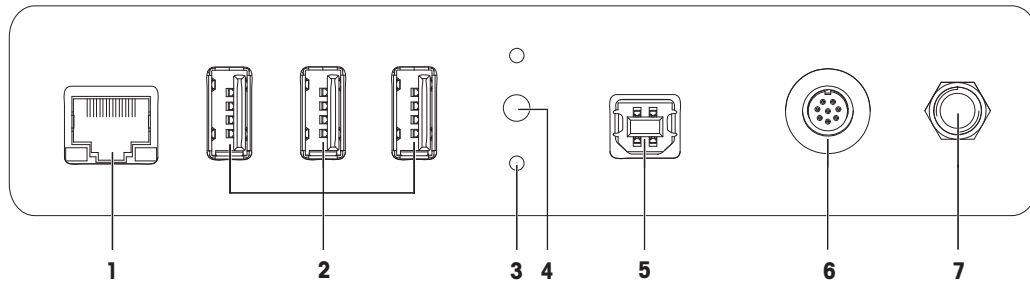


0.1 g



1	Weighing pan support cap	6	Safety foot
2	DripTray	7	Weighing platform with protective cover
3	SmartPan weighing pan	8	Fastening plate with position screws
4	Weighing pan support	9	Leveling foot
5	Weighing pan with protective cover	10	Terminal with protective cover

3.1.4 Interface board

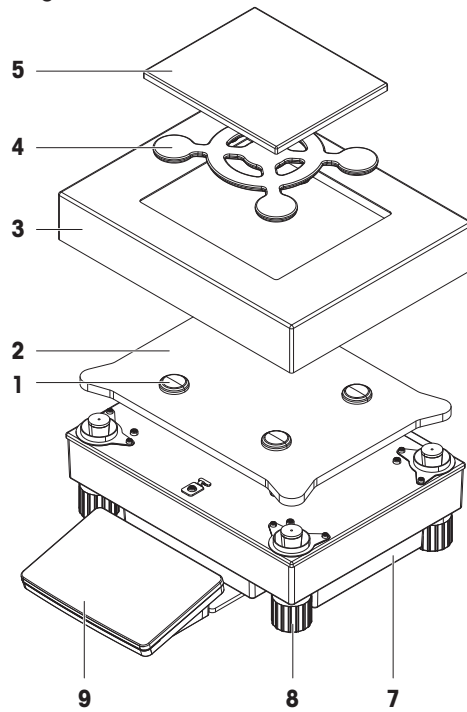


1	Ethernet port	5	USB host port
2	USB device ports	6	Socket for terminal connection cable
3	Fixations for optional terminal stand	7	Socket for AC/DC adapter
4	Service seal		

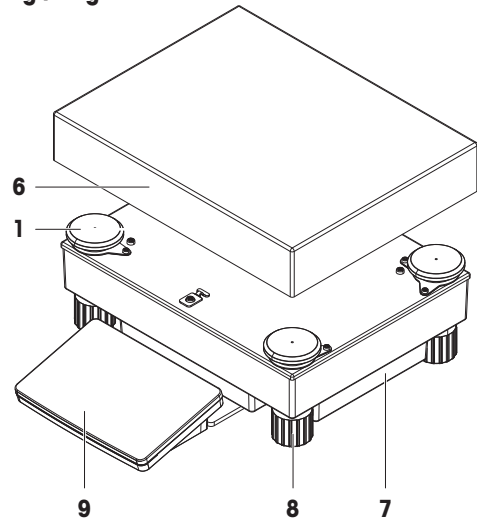
3.2 Overview L weighing platform

3.2.1 Balances

10 mg



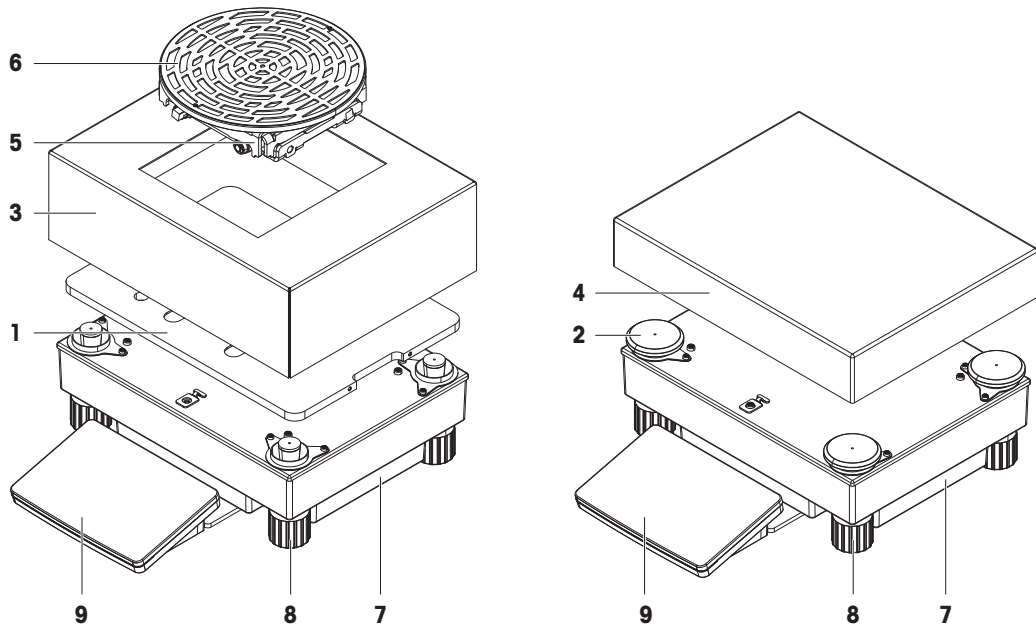
0.1 g / 1 g



1	Weighing pan support cap	6	Weighing pan
2	Adapter plate	7	Weighing platform
3	Draft shield element	8	Leveling foot
4	SmartPan weighing pan	9	Terminal with protective cover
5	Weighing pan with protective cover		

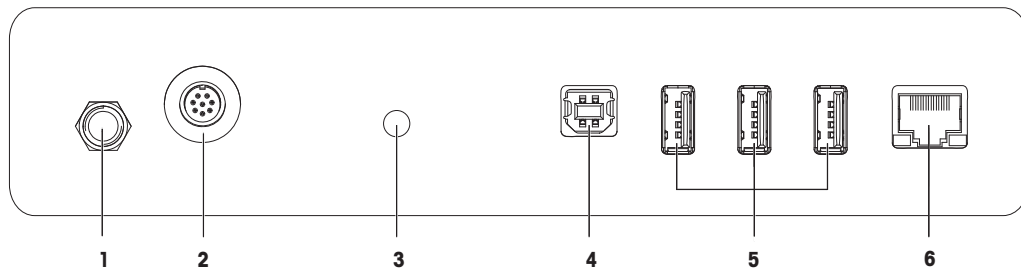
3.2.2 Comparators

1 mg / 5 mg / 10 mg



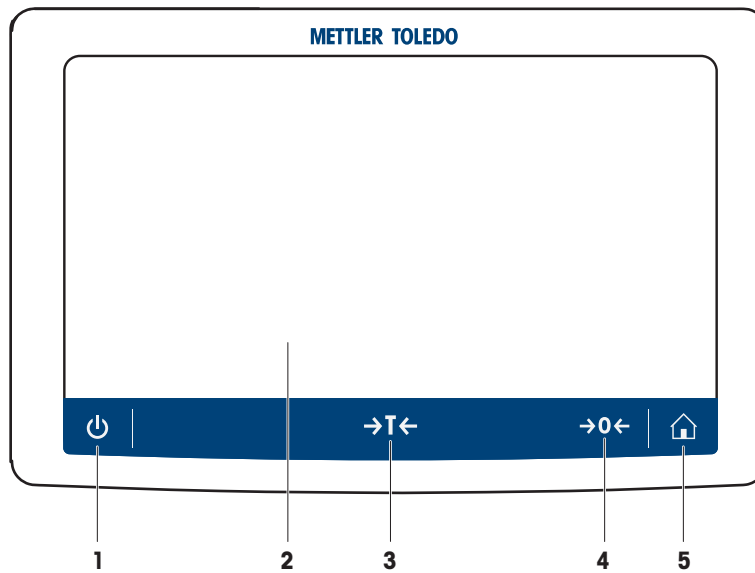
1	Adapter plate with LevelMatic base plate	6	LevelMatic weighing pan
2	Weighing pan support cap	7	Weighing platform
3	Draft shield element	8	Leveling foot
4	Weighing pan	9	Terminal with protective cover
5	LevelMatic weighing pan holder		

3.2.3 Interface board



1	Socket for AC/DC adapter	4	USB host port
2	Socket for terminal connection cable	5	USB device ports
3	Service seal	6	Ethernet port

3.3 Terminal



No.	Key	Name	Explanation
1		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.
2	-	7 inch capacitive TFT touchscreen	The touchscreen shows information about the current weighing process.
3		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.
4		Zero	Zeroes the balance. The balance must always be zeroed before starting the weighing process. After zeroing, the balance sets a new zero point.
5		Home	To return from any menu level to the home screen.

3.4 User Interface

3.4.1 Method work screen

The method work screen is the basic screen that appears when working with the balance. Depending on the method, the method work screen can slightly differ, but the basic elements appear for all methods.



No.	Name	Explanation
1	User name	Shows the name of the current user.
2	Level indicator	Indicates if the balance is leveled.
3	Weighing value field	Shows the current weighing value.
4	Info weight	Shows the current weighing value in another unit.
5	Drawer Protocol	In this section the weighing results are being shown.
6	Sample status OK	The weighing result was within the defined tolerances.
7	Sample status Not OK	The weighing result was out of the defined tolerances.
8	Button Add to protocol	Adds the result to the protocol. Depending on the selected method the button can have different functions.
9	Weighing action field	This field contains actions referring to the current task.
10	Method information area	Contains information about sample IDs, method IDs or task IDs.
11	Weighing-in aid	Defines a target weight with upper und lower tolerances.
12	Weighing value area	In this area the result of the current weighing process is shown.
13	Method name	Shows the name of the current method.

3.4.2 Input dialogs

3.4.2.1 Entering characters and numbers

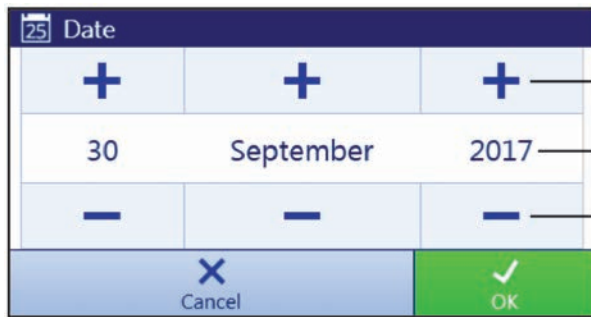
In this keyboard dialog characters including letters, numbers and a variety of special characters can be entered.



No.	Name	Explanation
1	Input field	Shows the characters or numbers that have been entered.
2	Delete	Deletes the character next to the current cursor position. The cursor can be positioned by using the touchscreen.
3	Discard	Closes the keyboard dialog.
4	Confirm	Confirms the entered data.
5	Numbers and special characters	To switch into the special characters mode.
6	Shift	To switch between lower or upper case letters.
7	Menu section title	Shows the title of the current setting section.

3.4.2.2 Changing the date and time

In this dialog (picker view) the user can set the date and the time.



No.	Name	Explanation
1	Pick button	Increment
2	Picker field	Shows the defined time or date.
3	Pick button	Decrement

Note

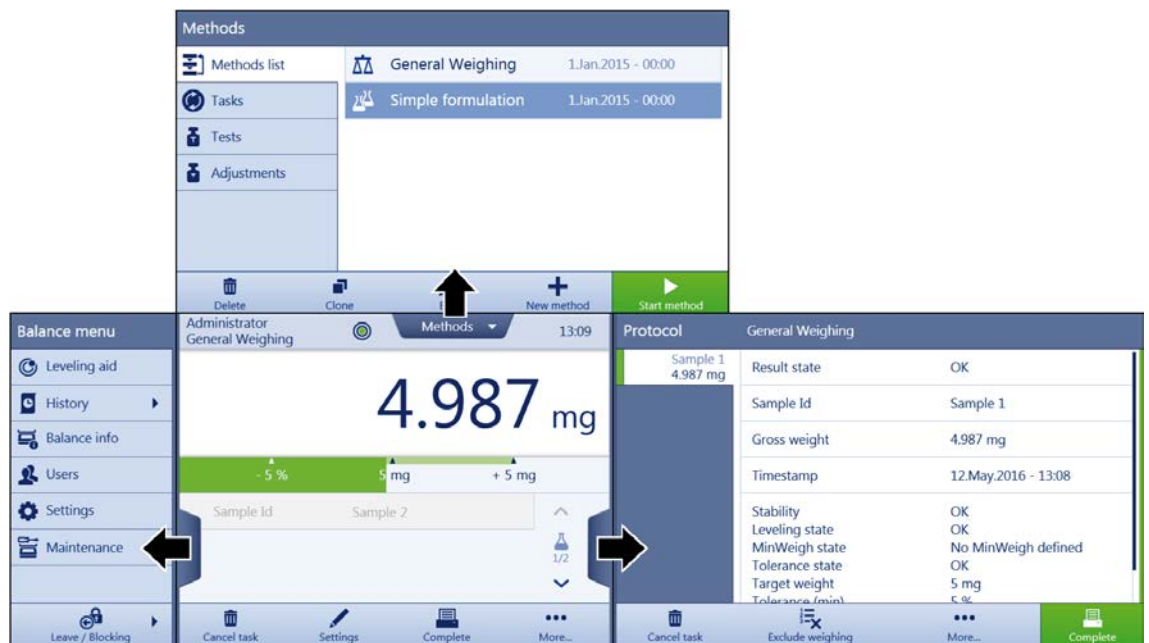
The format of date and time can also be defined in the settings via the options **Date format** and **Time format**.

4 Basic Navigation

This section describes, how to navigate on the touch screen.

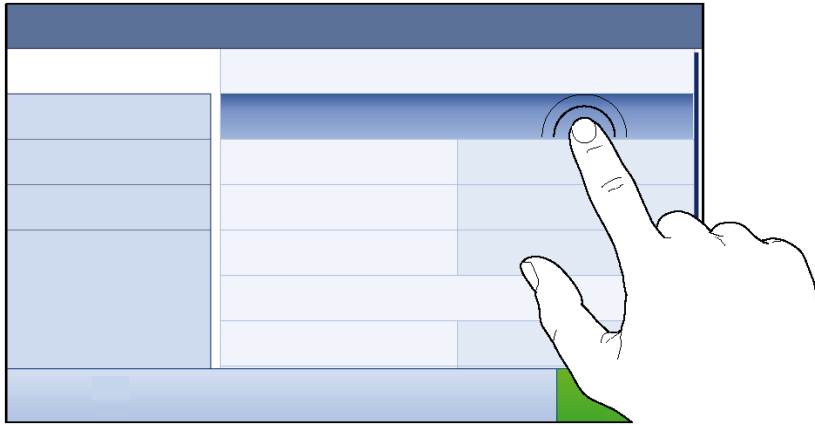
4.1 Main sections at a glance

The method work screen is the central navigation point where all the menus and settings can be reached (the picture shows the method work screen of the method **General Weighing**). The sections **Balance menu**, **Methods** and **Protocol** can be opened by tapping the drawers along the method work screen.



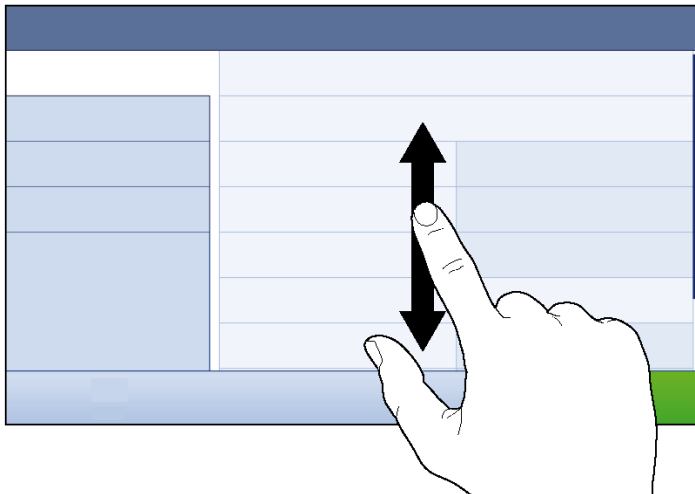
4.2 Opening a section/function

A menu item or a function can be selected or activated by tapping it.



4.3 Scrolling

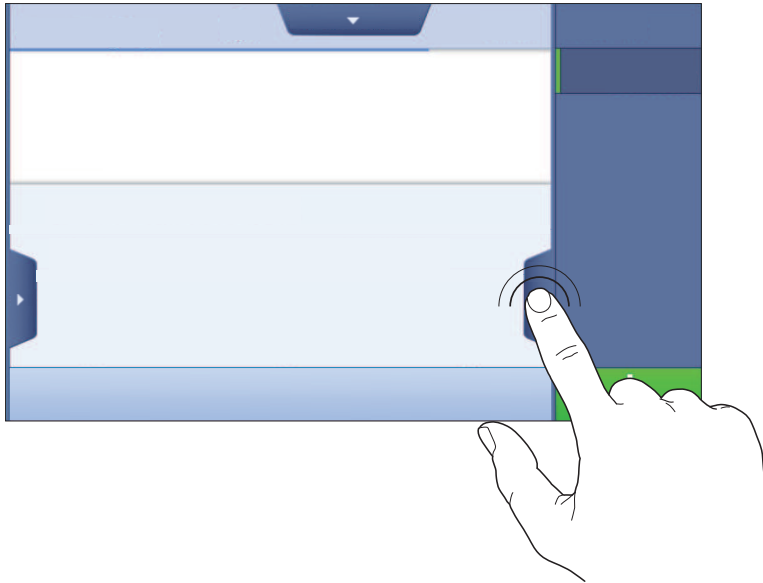
If a list of available options or results is longer than the size of the screen, a scroll bar appears on the right side of the list. Place the finger on the list and move the finger up and down to scroll through the list.



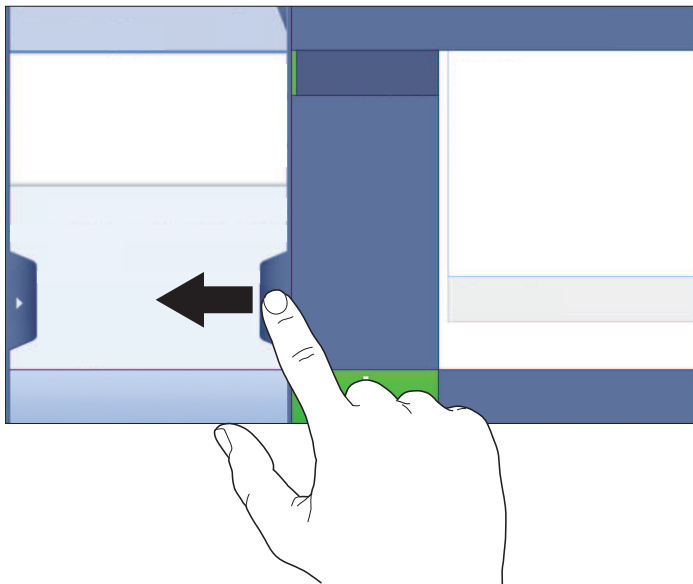
4.4 Using the drawer

This sections explains how to use the drawers. The drawers are placed along the sides of the method work screen.

- 1 Place the finger on the drawer [◀] along the right side of the screen.



- 2 Keep the finger on the drawer and move it to the left.



 **Note**

The sections can also be opened or closed by tapping the drawer symbol.

5 Installation and Putting into Operation

5.1 Unpacking the balance

Open the balance packaging and check for transportation damage or missing parts. Please inform a METTLER TOLEDO representative in the event of missing or defective parts.

We recommend retaining the original box with its packaging elements. The packaging elements are designed to protect the balance. Use the packaging elements and the original box to store and transport the balance.

5.2 Scope of delivery



NOTICE

Risk of damage to the instrument due to the use of unsuitable parts!

Using unsuitable parts with the instrument can damage the Instrument or cause it to malfunction.

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

5.2.1 Balances with S weighing platform

Components	0.1 mg with Pro Draft Shield	1 mg with Pro Draft Shield	1 mg without Pro Draft Shield	5 mg / 10 mg	0.1 g
Weighing platform with protective cover	✓	✓	✓	✓	✓
Terminal with protective cover	✓	✓	✓	✓	✓
Terminal support	✓	✓	✓	✓	✓
Terminal connection cable (pre-assembled)	✓	✓	✓	✓	✓
Pro Draft Shield	✓	✓	–	–	–
Weighing pan 127 x 127 mm	–	✓	–	–	–
Weighing pan 172 x 205 mm	–	–	–	✓	–
Weighing pan 193 x 223 mm	–	–	–	–	✓
SmartPan weighing pan	✓	✓	✓	✓	–
Weighing pan support	–	–	–	–	✓
DripTray	✓	✓	✓	✓	–
Ring seal	✓	–	–	–	–
Weighing hook for below-the-balance weighing	✓	✓	✓	✓	✓
AC/DC adapter	✓	✓	✓	✓	✓
Power cable (country-specific)	✓	✓	✓	✓	✓
Operating instructions and user manuals printed or on CD-ROM (country-specific)	✓	✓	✓	✓	✓
Production certificate	✓	✓	✓	✓	✓
CE declaration of conformity	✓	✓	✓	✓	✓

5.2.2 Comparators with S weighing platform

Components	0.1 mg	1 mg
Weighing platform with protective cover	✓	✓
Terminal with protective cover	✓	✓
Terminal support	✓	✓
Terminal connection cable (pre-assembled)	✓	✓
Pro Draft Shield (not for XPR10003SC)	✓	✓
Draft shield XP W12 (only for XPR10003SC)	–	✓
SmartPan weighing pan	✓	✓
LevelMatic weighing pan Ø 130 mm (not for XPR2003SC)	✓	✓
Bottom plate	✓	✓
Ring seal	✓	–
Weighing hook for below-the-balance weighing	✓	✓
AC/DC adapter	✓	✓
Power cable (country-specific)	✓	✓
Operating instructions and user manuals printed or on CD-ROM (country-specific)	✓	✓
Mass calibration software MC Link	✓	✓
Production certificate	✓	✓
CE declaration of conformity	✓	✓

5.2.3 Balances with L weighing platform

Components	10 mg	0.1 g / 1 g
Weighing platform	✓	✓
Terminal with protective cover	✓	✓
Terminal support	✓	✓
Terminal connection cable	✓	✓
Draft shield element	✓	–
Weighing pan 172 × 205 mm	✓	–
Weighing pan 280 × 360 mm	–	✓
SmartPan weighing pan	✓	–
Power cable (country-specific)	✓	✓
Operating instructions and user manuals printed or on CD-ROM (country-specific)	✓	✓
Production certificate	✓	✓
CE declaration of conformity	✓	✓

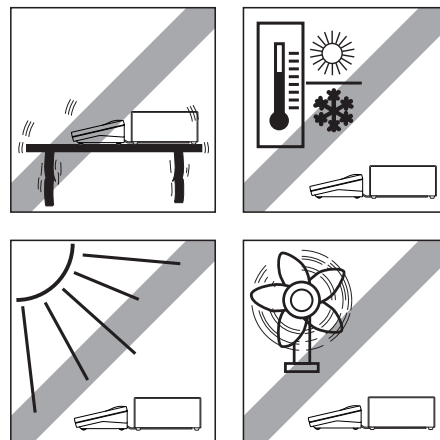
5.2.4 Comparators with L weighing platform

Components	1 mg	5 mg	10 mg
Weighing platform	✓	✓	✓
Terminal with protective cover	✓	✓	✓
Terminal support	✓	✓	✓
Terminal connection cable	✓	✓	✓
Draft shield element XP W64 (only for XPR26003LC and XPR64003LD5C)	✓	✓	–
Weighing pan 280 × 360 mm (not for XPR64003LD5C and XPR64002LC)	–	✓	✓
LevelMatic weighing pan Ø 220 mm with draft shield element and weighing pan holder (not for XPR32003LD5C)	✓	✓	–
Weighing pan Ø 220 mm with draft shield cover (only for XPR64002LC)	–	–	✓
Power cable (country-specific)	✓	✓	✓
Transport case (only for XPR64002LC)	–	–	✓
Operating instructions and user manuals printed or on CD-ROM (country-specific)	✓	✓	✓
Mass calibration software MC Link	✓	✓	✓
Production certificate	✓	✓	✓
CE declaration of conformity	✓	✓	✓

5.3 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.

- Choose a solid table that is as horizontal as possible. Choose the table according to the maximum capacity of the balance.
The balance must only be used indoors and up to a maximum altitude of 4,000 m above sea level.
- Before switching on the balance, wait until all parts are at room temperature (+10 °C to +30 °C). The humidity must be between 10% and 80% non-condensing.
- The power plug must be accessible.
- Vibration-free location
- No direct sunlight
- No excessive temperature fluctuations
- No strong drafts



5.4 Assembling balances with S weighing platform

5.4.1 Attaching the terminal to the weighing platform

The terminal is usually placed in front of the weighing platform on the terminal support. The terminal can also be placed individually, e.g. beside the weighing platform or it can be fixed on an additional terminal stand.



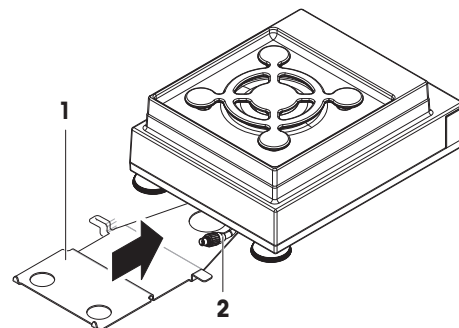
NOTICE

Damage to the balance

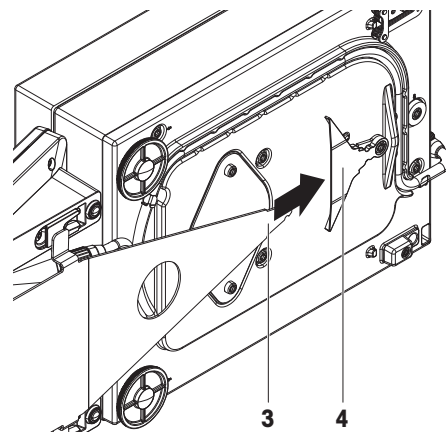
The weighing platform and the terminal are not safely fixed by the terminal support and may fall off when carrying.

- Remove the terminal from the weighing platform and place it on the weighing pan when carrying the balance.

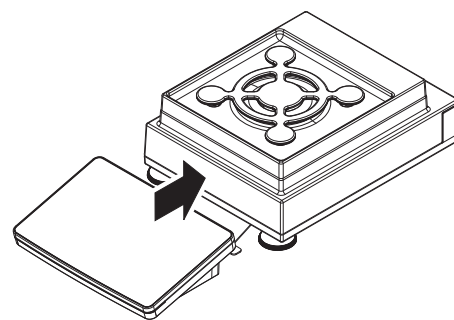
- 1 Place the weighing platform on a flat surface.
- 2 Position the terminal support (1) in front of the weighing platform. The plug of the pre-mounted terminal connection cable (2) must lie between the terminal support (1) and the weighing platform.



- 3 Push the terminal support towards the weighing platform. The far end of the terminal support (3) must be pushed into the lock element (4) at the bottom of the weighing platform.
- 4 Use the terminal connection cable to connect the terminal with the weighing platform.



- 5 Place the terminal on top of the terminal support.
 - 6 Push the terminal towards the weighing platform until the terminal locks into the terminal support.
- ⇒ The terminal is mounted and connected to the weighing platform.

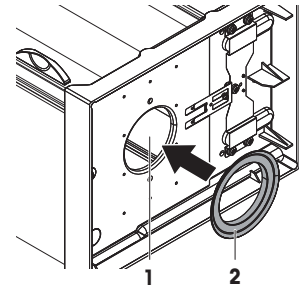


5.4.2 Balances 0.1 mg with Pro Draft Shield and SmartPan weighing pan

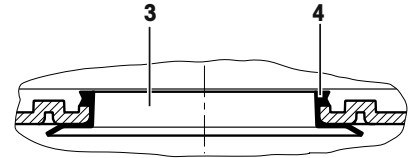
Note

The 0.1 mg balances with Pro Draft Shield are equipped with a ring seal. The aim of the ring seal is to isolate the weighing chamber from draft and must always be correctly installed at the bottom of the Pro Draft Shield.

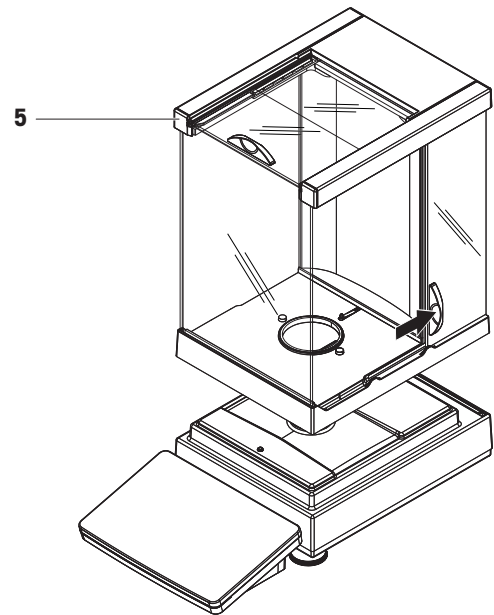
- 1 Turn the Pro Draft Shield carefully sideways into horizontal position.
- 2 Push the ring seal (2) through the opening (1) on the bottom of the Pro Draft Shield.



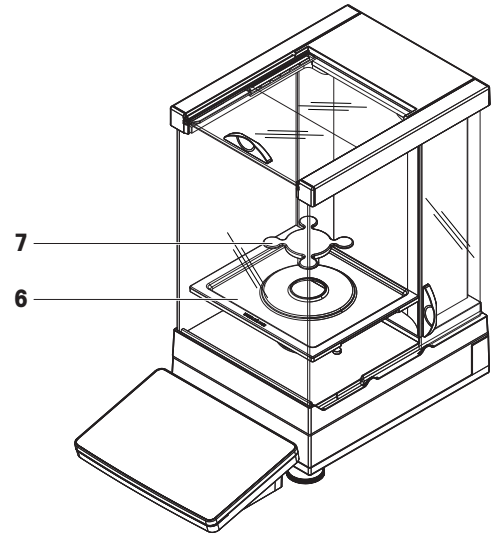
- 3 Fix the ring seal in the opening of the Pro Draft Shield. The ring seal (3) must be properly fixed into the opening. The upper edge (4) of the ring seal must lay all around the bottom of the Pro Draft Shield.
- 4 Turn the Pro Draft Shield carefully back into vertical position.



- 5 Open the Pro Draft Shield with the door handlers on both sides.
- 6 Hold the Pro Draft Shield on the top bars (5) on both sides and place it on top of the weighing platform.

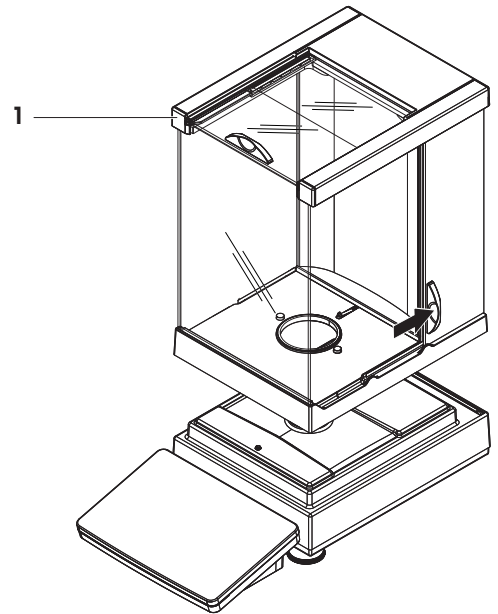


- 7 Place the DripTray (6) into the Pro Draft Shield.
- 8 Place the SmartPan weighing pan (7) into the Pro Draft Shield on top of the DripTray (6).

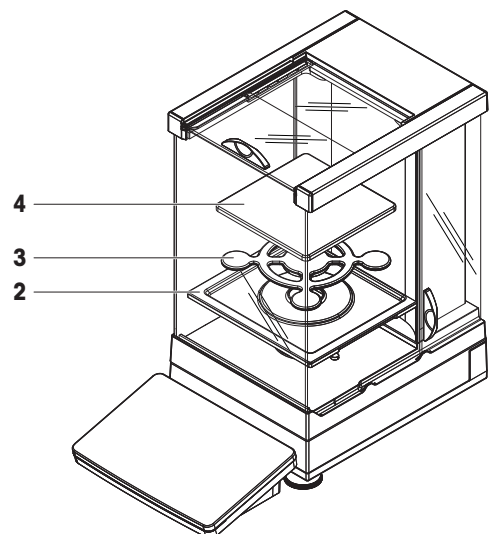


5.4.3 Balances 1 mg with Pro Draft Shield

- 1 Open both side doors of the Pro Draft Shield.
- 2 Hold the Pro Draft Shield on the top bars (1) on both sides.
- 3 Place the Pro Draft Shield on top of the weighing platform.

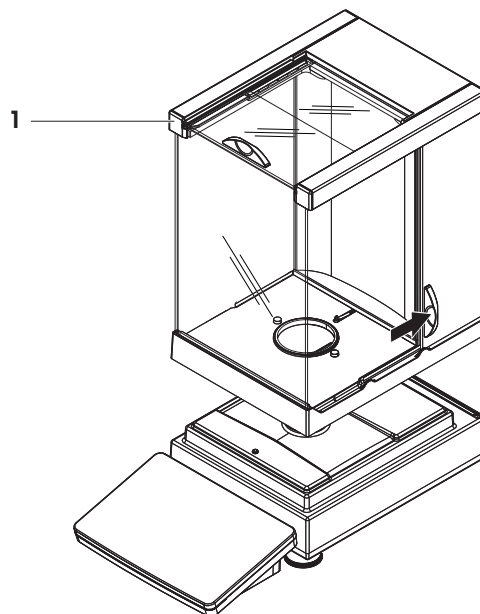


- 4 Place the DripTray (2) into the Pro Draft Shield.
- 5 Place the SmartPan weighing pan (3) into the Pro Draft Shield on top of the DripTray (2).
- 6 The weighing pan (4) is optional and can be placed into the Pro Draft Shield on top of the SmartPan weighing pan (3).

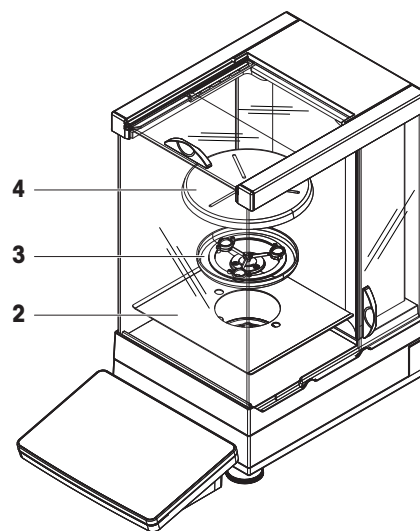


5.4.4 Comparators 0.1 mg and 1 mg with LevelMatic weighing pan

- 1 Open both side doors of the Pro Draft Shield.
- 2 Lift the Pro Draft Shield by holding on the top bars (1) on both sides.
- 3 Place the Pro Draft Shield on top of the weighing platform.

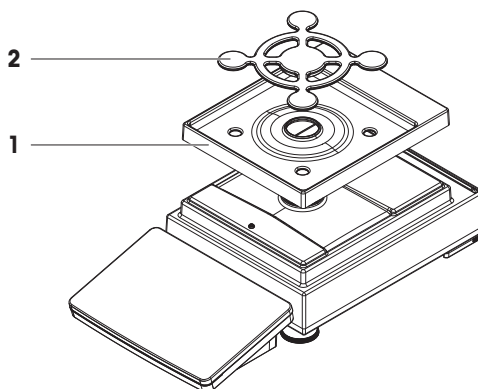


- 4 Place the bottom plate (2) into the Pro Draft Shield.
- 5 Place the LevelMatic holder (3) into the Pro Draft Shield on top of the bottom plate (2).
- 6 Place the LevelMatic weighing pan (4) into the Pro Draft Shield on top of the LevelMatic weighing pan holder (3).



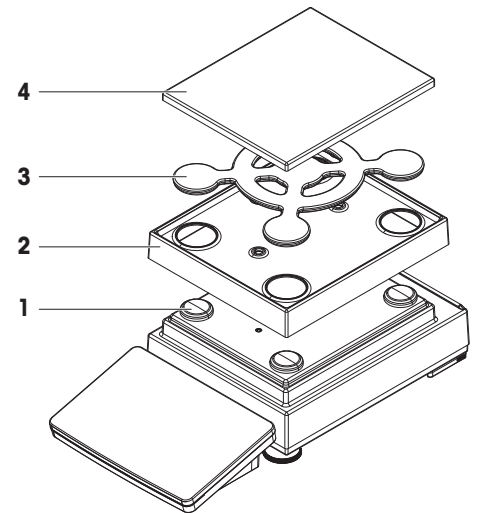
5.4.5 Balances 1 mg with SmartPan weighing pan

- 1 Place the DripTray (1) on top of the weighing platform.
- 2 Place the SmartPan weighing pan (2) on top of the DripTray (1).
- 3 The weighing pan can be placed on top of the SmartPan weighing pan if needed.



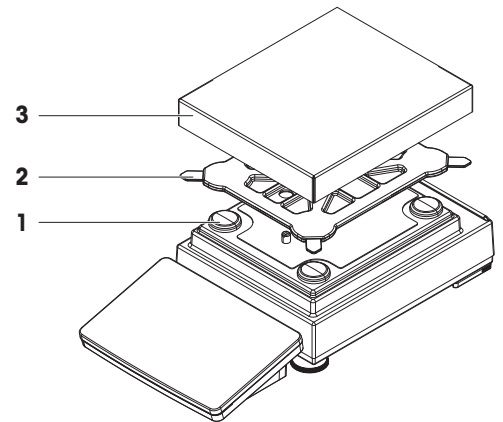
5.4.6 Balances 5 mg / 10 mg with SmartPan weighing pan

- 1 Place the weighing pan support caps (1) on top of the weighing platform.
- 2 Place the DripTray (2) on top of the weighing platform.
- 3 Place the SmartPan weighing pan (3) on top of the 4 weighing pan support caps (1).
- 4 Place the weighing pan with the protective cover (4) on top of the SmartPan weighing pan (3).



5.4.7 Balances 0.1 g

- 1 Place the 4 pan support caps (1) on top of the weighing platform.
- 2 Place the weighing pan support (2) on top of the 4 weighing pan support caps (1).
- 3 Place the weighing pan with the protective cover (3) on top of the weighing pan support (2).

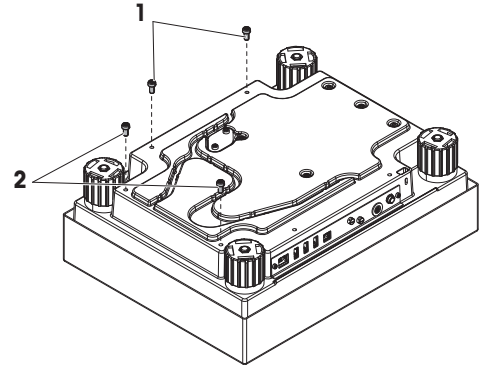


5.5 Assembling balances with L weighing platform

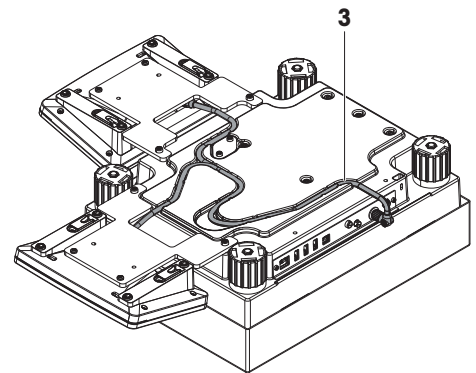
5.5.1 Attaching the terminal to the weighing platform

The terminal can be attached to the long side or to the short side of the L weighing platform.

- 1 Turn the weighing platform upside down.
- 2 Dismantle the screws (1) on the long side or the screws (2) on the short side of the weighing platform.
- 3 Connect the terminal to the weighing platform with the terminal connection cable.
- 4 Attach the terminal support to the long side or to the short side of the weighing platform. Fix the terminal support with the screws from the weighing platform.



- 5 Insert the terminal connection cable (3) into the cable channel.



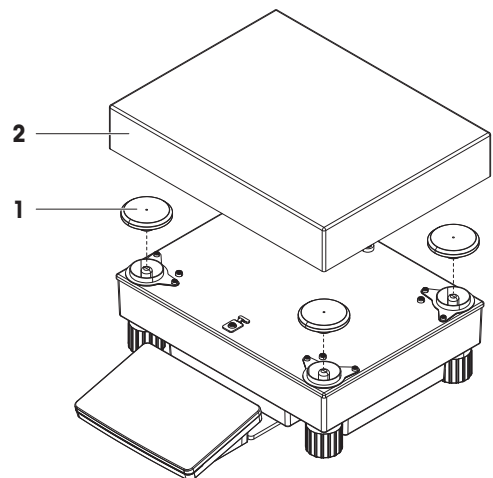
Note

When inserting the terminal connection cable into the cable channel, the terminal connection cable must be inserted simultaneously from both directions. The terminal connection cable must not have any play between the plug and the cable channel (see picture).

- 6 Turn the weighing platform.

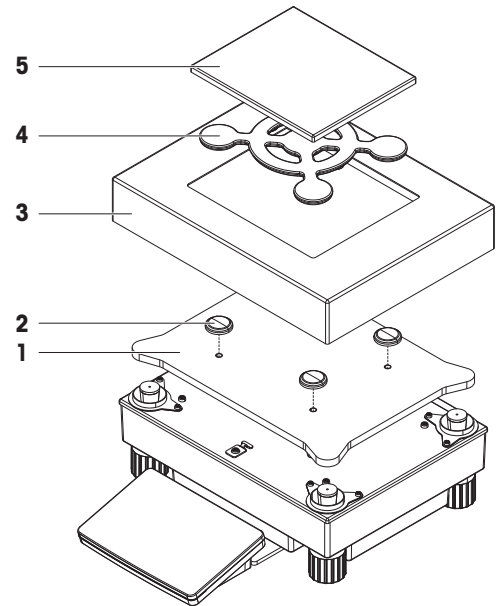
5.5.2 Balances 0.1 g and 1 g

- 1 Place the weighing pan support caps (1) on top of the weighing platform.
- 2 Place the weighing pan (2) on top of the weighing pan support caps (1).



5.5.3 Balances 10 mg with SmartPan weighing pan

- 1 Place the adapter plate (1) on top of the weighing platform.
- 2 Place the weighing pan support caps (2) on top of the adapter plate.
- 3 Place the draft shield element (3) on top of the adapter plate (1).
- 4 Place the SmartPan weighing pan (4) on top of the weighing pan support caps (2).
- 5 Place the weighing pan (5) on top of the SmartPan weighing pan (4) if needed.

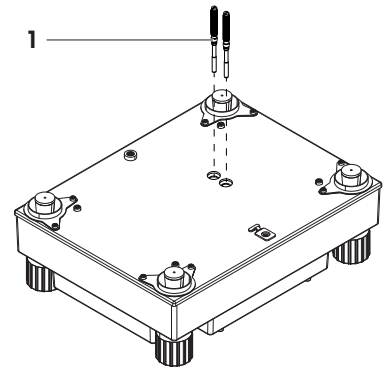


5.5.4 Removing the transport arrestments (only for comparators)

 **Note**

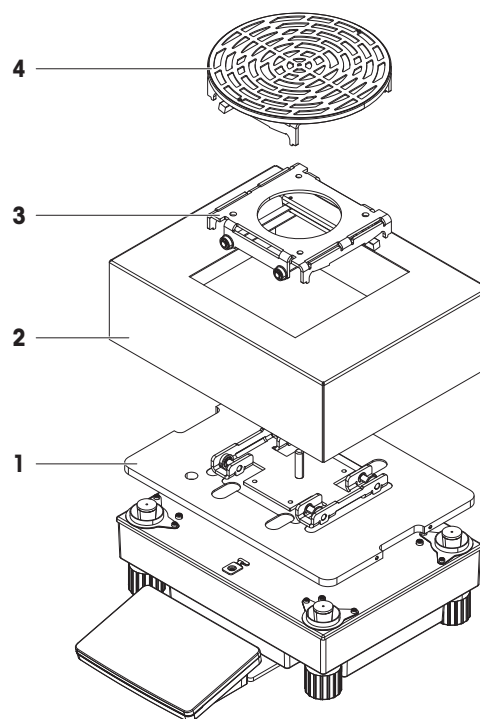
Before installing the weighing pan, the transport arrestments on top of the weighing platform must be removed. Keep the transport arrestments for transporting the comparator.

- 1 Remove the transport arrestments (1) at the top of the weighing platform.
- 2 Close the openings with the enclosed plastic covers.



5.5.5 Comparators 1 mg / 5 mg with LevelMatic weighing pan

- 1 Place the adapter plate with the LevelMatic base plate (1) on top of the weighing platform.
- 2 Place the draft shield element (2) on top of the adapter plate (1).
- 3 Place the LevelMatic weighing pan holder (3) on top of the LevelMatic base plate (1).
- 4 Place the LevelMatic weighing pan (4) on top of the LevelMatic weighing pan holder (3).



5.6 Connecting the balance to the mains



WARNING

Danger of death or serious injury due to electric shock.

Contact with parts that contain a live current can lead to injury and death.

- 1 To connect the balance, only use the supplied three-core power cable with equipment grounding conductor.
- 2 Only use a three-pin power socket with earthing contact.
- 3 Only use standardized extension cable with equipment grounding conductor.
- 4 Do not disconnect the equipment grounding conductor.



NOTICE

Damage to the balance due to short circuit!

Damage to the insulation on the AC/DC adapter can result in a short circuit and damage the balance.

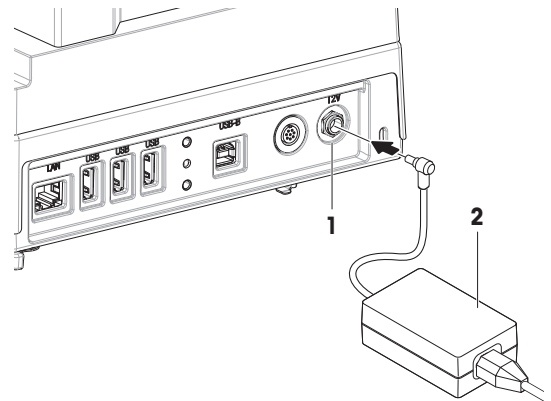
- 1 Only use the original AC/DC adapter supplied with your balance.
- 2 Route the cable so that it cannot be damaged by external influences.
- 3 Make sure that the power plug is always accessible.

Note

The balance is supplied with an AC/DC adapter and a country-specific power cable. The AC/DC adapter is suitable for use with the following voltage range:
100 – 240 V AC, 50/60 Hz.

Connect the balance to the mains as follows:

- 1 Check whether your local power supply falls within the range of the delivered AC/DC adapter. If this is not the case, under no circumstances connect the AC/DC adapter to the power supply, but contact a METTLER TOLEDO representative.
 - 2 Connect the AC/DC adapter (2) to the AC/DC socket (1).
 - 3 Use the power cable to connect the AC/DC adapter to the mains.
- ⇒ The balance performs a self-test after connection to the power supply and is then ready to use.



5.7 Setting up the balance

5.7.1 Switching on the balance

When the balance is connected to the mains it starts automatically.

EULA (End User License Agreement)

When the balance is switched on for the first time, the EULA (End User License Agreement) appears on the screen. Read the conditions, tap **I accept the terms in the license agreement.** and tap **✓ OK.**

Note

Before the balance can be used, it must warm up first. The warm-up time is at least 30 minutes after connecting the balance to the power supply. When the balance was switched on from standby-mode, the balance is ready for operation immediately.

5.7.2 Leveling the balance

When the balance is switched on for the first time or when it is switched on after the location of the balance has been changed, the message **Balance is out of level** appears. By tapping ► the function **Leveling aid** opens. Follow the instructions on the screen to level the balance.

Navigation: ► **Balance menu** > ⌚ **Leveling aid**

Note

A leveled balance and a stable installation are prerequisites for accurate weighing results.

5.7.3 Performing a simple weighing

When the balance is switched on for the first time, the method work screen of the method **General Weighing** opens (the method work screen is described in more detail in the section Method work screen).

5.7.3.1 Zeroing

- 1 Clear the weighing pan.
 - 2 Close the weighing chamber if the balance has a draft shield.
 - 3 Tap **→0←** to zero the balance.
- ⇒ The balance is zeroed.

5.7.3.2 Taring

If a weighing container is used, the balance must be tared.

- 1 Clear the weighing pan.

- 2 Close the weighing chamber if a draft shield is being used.
 - 3 Tap **→0←** to zero the balance.
 - 4 Open the weighing chamber if a draft shield is being used.
 - 5 Place the container on the weighing pan.
 - 6 Close the weighing chamber if a draft shield is being used.
 - 7 Tap **→T←** to tare the balance.
- ⇒ The balance is tared.

5.7.3.3 Performing General Weighing

- 1 Place the weight on top of the weighing pan and wait until the weight value is stable.
 - 2 Tap **+ Add to protocol**.
- ⇒ The weighing process was successful. The weight value has been transferred to the section **Protocol**.

5.7.4 Setting the balance to standby mode

The balance can be set to standby mode by holding **⏻**. The standby mode can be finished by holding **⏻** again.

5.7.5 Switching off the balance

To completely switch off the balance it must be disconnected from the mains. By holding **⏻** the balance goes only into standby mode.

Note

When the balance was completely switched off for some time, it must be warmed up for at least 30 minutes before it can be used.

5.8 Below-the-balance weighing

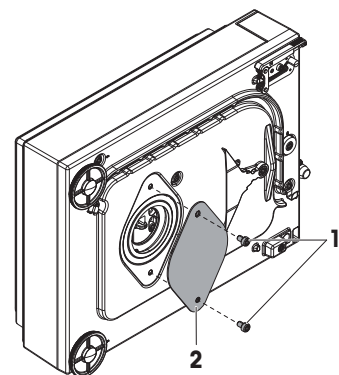
All models with S weighing platform are equipped with a weighing hook for below-the-balance weighing. Models with L weighing platform are not equipped with a weighing hook. The weighing hook for L weighing platforms can be ordered as an accessory.

Note

Before preparing the balance for below-the-balance weighing, the balance must be switched off, disconnected from the mains and all components (e.g. draft shield, terminal or weighing pan) must be removed from the weighing platform.

5.8.1 S weighing platform

- 1 Disconnect the balance from the mains and remove all elements from the weighing platform.
 - 2 Turn the weighing platform to the side.
 - 3 Dismantle the screws (1) and remove the cover plate (2).
 - 4 Turn the weighing platform back and reinstall all components.
- ⇒ The hook is accessible and can be used for below-the-balance weighing.



5.8.2 L weighing platform

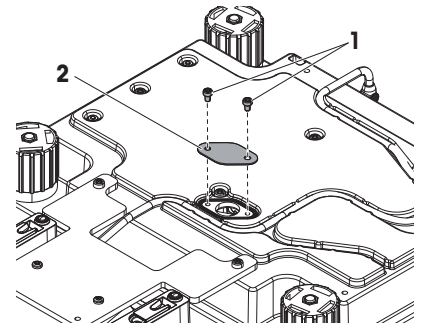


NOTICE

Damage to the comparator

Make sure that the transport arrestments have been correctly removed from the comparator before installing the weighing hook. Otherwise the outstanding transport arrestments might damage the balance or the surface where the balance is placed.

- 1 Turn the weighing platform upside down.
 - 2 Dismantle the screws (1) and remove the cover plate (2).
 - 3 Install the hook.
 - 4 Turn the weighing platform to its normal position and reinstall all components.
- ⇒ The balance is ready for below-the-balance weighing.



5.9 Transporting the balance



NOTICE

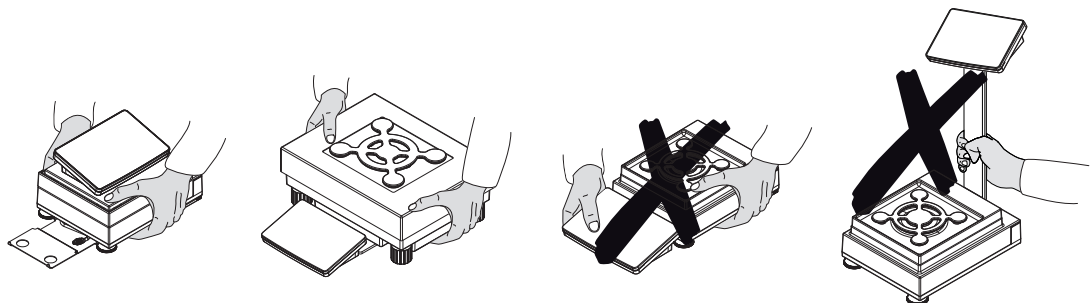
Damage to the draft shield, terminal or additional terminal stand

Do not hold the balance only by the glass draft shield, by the terminal or by the terminal stand when carrying the balance.

- Remove the terminal of the S weighing platform from the terminal support and place the terminal on top of the weighing pan. Always hold the weighing platform with both hands when carrying the balance.

5.9.1 Carrying the balance over short distances

- 1 Switch off the balance and disconnect the balance from the mains.
- 2 Unplug all interface cables if necessary.
- 3 Hold the weighing platform with both hands.
- 4 Remove the terminal from the terminal support element and place the terminal on top of the weighing platform (only for S weighing platform).
- 5 Carry the balance in horizontal position to the new location.



5.9.2 Transporting the balance over long distances



NOTICE

Damage to the comparator

Always attach the transport arrestments on top of the weighing platform when transporting the comparator over long distances. Otherwise the comparator might get damaged during transportation.

We recommend 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.

6 Methods





The section **Methods** includes the weighing methods as well as test and adjustment procedures to check the accuracy of the balance.

A weighing method is an application for carrying out specific weighing tasks. The balance offers various predefined methods with default parameters. You can use this methods for your weighing task or editing them according to your requirements. Predefined methods can also be deleted or cloned.

To support you while configuring new methods, a configuration wizard leads you through the whole process. The changes performed to a method are recorded in the change history. To ensure that only privileged user can edit the method settings, methods can get locked.

Navigation: ▾ **Methods**

The section **Methods** is divided into the following sub-sections:





-  **Methods list** (see section [Methods list ▶ Page 37])
-  **Tasks** (see section [Tasks ▶ Page 70])
-  **Tests** (see section [Tests ▶ Page 70])
-  **Adjustments** (see section [Adjustments ▶ Page 80])

6.1 Methods list

In the section **Methods list** new methods can be defined, existing methods can be edited, cloned or cancelled. It is also the starting point of using any method in a weighing procedure.

Navigation: ▾ **Methods** >  **Methods list**


The following methods are available:

-  **General Weighing** (see section [General Weighing ▶ Page 39])
-  **Simple formulation** (see section [Simple Formulation ▶ Page 49])
-  **Piece Counting** (see section [Piece Counting ▶ Page 58])
-  **Interval weighing** (see section [Interval Weighing ▶ Page 65])

6.1.1 Creating new method

To create a new method tap **+ New** in the action bar. A stepwise wizard will lead you through the method definition.

6.1.2 Editing method

- 1 Open the **Methods** section.
- 2 Tap the method that you want to edit.
- 3 Tap  **Edit**.
⇒ The dialogue screen **Edit method - {0}** opens.
- 4 Define the settings of the method.

 **Note**

An overview of the method settings can be found at the end of every method section.


6.1.3 Cloning 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.

The name of the cloned method is always similar to its original name. Additionally there is always a number at the end of the method name.

To clone an existing method proceed as follows:

- 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  **Clone**.
⇒ A copy of the selected method appears in the list. The cloned method has the same settings like the original method.





Note

A method can be cloned several times. The name of the cloned method is always similar to its original name. Additionally there is always a number at the end of the method name.

6.1.4 Deleting 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  **Delete**.
⇒ The message **Delete method and cancel tasks?** appears on the screen.
- 4 Tap  **Yes** 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.

6.1.5 General Weighing

This section describes the method **General Weighing**. The method **General Weighing** offers the basic weighing functions (zeroing, taring, weighing) with no process support. The method is used for simple weighing tasks or to perform a series of check weighing or dosing.

This section describes how to create a new method with the method wizard, how to work with the method and the method settings. The parameter 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 for the weighing item. Templates are helpful to save time while weighing items with the same parameters and to ensure the consistent use of the parameters. For further information **see** [Using templates ▶ Page 69].

In the section [Method settings ▶ Page 40] the descriptions of the settings for both methods **General Weighing** and **General Weighing with templates** can be found.

6.1.5.1 Creating new method for General Weighing

A stepwise wizard leads you through the creating process.

- 1 Open the **Methods** section.
- 2 Tap **+ New** in the action bar.
 - ⇒ The method wizard opens, starting at **1. Method type**.
- 3 Tap **Method type** and select the method type **General Weighing** or **General Weighing with templates**.
- 4 Follow the stepwise wizard through the creating process.
- 5 Tap **Save method** at the end of the wizard.
 - ⇒ The method has been created and appears in the list.

6.1.5.2 Performing General Weighing

This section describes how the method **General Weighing** is being used in a task. In this example we are weighing one single weight without any tare weight.

- 1 Open the **Methods** section.
- 2 Select a method from the list or define a new method.
- 3 Tap **▶ Start method**.
 - ⇒ The method work screen of the selected method opens.
- 4 Press **→0←** to zero the balance.
- 5 Place the weight on the weighing pan.
- 6 Wait until the weight is stable.
- 7 Tap **+ Add to protocol**.
 - ⇒ The weighing result appears in the protocol area on the right side of the screen.
- 8 When the weighing process is finished, tap **Complete** in the action bar.
 - ⇒ The window **Complete task** appears. The result of the task can be printed on a label printer, the protocol can be printed manually or the result can be exported on an external storage device.
 - ⇒ The task **General Weighing** was successfully completed.








Note

When you tap **Delete protocol** the current weighing process will close without saving any data. The window **Complete task** always appears after completing the task, even if the results will be saved automatically.

6.1.5.3 Method settings

In this section, the settings of the methods **General Weighing** and **General Weighing with templates** are being described.

The section **Edit method - {0}** is divided into the following sub-sections:

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

6.1.5.3.1 General

The following parameters can be defined:

Parameter	Explanation	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 Inactive*

* Factory setting

Note

The option **Method type** has been defined in the wizard and cannot be changed.

6.1.5.3.2 ID format

The following parameters can be defined:

Task IDs

Parameter	Explanation	Values
Number of task IDs	For a method up to three task identifiers (task IDs), such as SOP Id, Lot Id etc. can be defined. If the value of the option Number of task IDs is between 1-3, the options Task ID 1 , Description and Prefix/Default value appear for every single task ID.	0 1* 2 3
Task ID 1	Defines the value 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* Automatic timestamp
Description	Describes the option Task ID 1 .	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)

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)
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* Factory setting

Result IDs

Parameter	Explanation	Values
Number of result IDs	Defines the number of result IDs. If the value of the option Number of result IDs is between 1-3, the options Result ID 1 , Description and Prefix/Default value appear for every single result ID.	0 1* 2 3
Result ID 1	Defines the value 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 Automatic counter*
Description	Describes the option Result ID 1 .	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This option only appears when the option Automatic counter is activated.	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 option Manual with default is activated.	Text (0...32 characters)

* Factory setting

6.1.5.3.3 Weighing item

In this section a target weight with tolerance limits can be defined. Depending on the selected method, the parameters for the weighing item are defined directly in the method (**General Weighing**) or in one or more templates (**General Weighing with templates**).

Note

This option is only available for the method **General Weighing**.

The following parameters can be defined:

Initial values for weighing

Parameter	Explanation	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 (min.)	Defines the under tolerance limit. This option only appears when the option Target weight is activated.	Numeric

Tolerance (max.)	Defines the upper tolerance limit. This option only appears when the option Target weight is activated.	Numeric
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* Factory setting

6.1.5.3.4 Templates

In this section a target weight with tolerance limits can be defined. Depending on the selected method, the parameters for the weighing item are defined directly in the method (**General Weighing**) or in one or more templates (**General Weighing with templates**).

Note

This Option is only available for the method **General Weighing with templates**.

The following parameters can be defined:

Parameter	Explanation	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 (min.)	Defines the under tolerance limit. This option only appears when the option Target weight is activated.	Numeric
Tolerance (max.)	Defines the upper tolerance limit. This option only appears when the option Target weight is activated.	Numeric

6.1.5.3.5 Weighing

The following parameters can be defined:

Parameter	Explanation	Values
Show info weight	With this option activated a secondary info weight appears on the weighing screen on top of the weighing result.	Active Inactive*
Info unit	Defines the unit of the info weight. This option only appears when the option Show info weight is activated.	The available units depend on the balance model.

* Factory setting

Custom unit

Parameter	Explanation	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 determination of the weighing result. The custom units are available in all menus and input fields in which weighing units can be selected.	Active 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* 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 2 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	Explanation	Values
Tolerance profile	To select a tolerance profile to use in a method. By setting up tolerance profiles you can ensure weighing tasks meet defined quality requirements and regulations. In addition, as the same profile is used each time a specific task is carried out, you can be sure of consistent settings to guarantee traceable results.	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. Dynamic : The balance calculates the weight as the average of a number of weighing operations over a defined time (Weight capture duration).	Stable* Immediate Dynamic
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 Immediate or Dynamic is selected.	Numeric (5 seconds* 0...60 seconds)
Weight capture duration	Defines the time in seconds the balance calculates 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 Dynamic is selected.	Numeric (10 seconds 3...120 seconds)

* Factory setting

Statistics

Activate statistics	<p>If Activate statistics is set to Active, the following statistics will be calculated:</p> <ul style="list-style-type: none"> • Count: Number of items used for the statistics. • Sum: The displayed values are summed up. • Minimum: The minimal displayed value. • Maximum: The maximum displayed value. • Average: The displayed values are summed up and divided by the count of values summed up. The result is rounded to the balance resolution. • Standard deviation • Relative standard deviation <p>The statistical values are calculated and visualized as soon as a result is added or updated.</p>	Active Inactive*
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* Factory setting

6.1.5.3.6 Automation

The following parameters can be defined:

Parameter	Explanation	Values
Barcode data target	<p>If a barcode reader is connected to the balance, this option defines how the data is to be processed.</p> <p>Keyboard Input: The data is written in the currently open input window. If no input window is open, the data is ignored.</p> <p>Target weight value: The barcode data is interpreted as a value for the target weight.</p> <p>Task ID 1: The received barcode data is treated as identification text for the Task ID.</p> <p>Result ID 1: The received barcode data is treated as identification text for the Result ID.</p>	Keyboard Input* Target weight value Task ID 1 Result ID 1

* Factory setting

Automatic feeder support



Automatic feeder support	<p>Enables or disables the automatic feeder support.</p> <p>To use the automatic feeder support, the automatic feeder has to be connected to the balance by USB and has to be configured correctly.</p>	Active Inactive*
Number of items to feed	<p>Defines the number of items the automatic feeder will deliver to the balance.</p>	Numeric 20* (1...100)
Plausibility limits	<p>Defines the plausibility limit for measured values.</p> <p>The plausibility limit relates to the defined target weight.</p> <p>Example: With a plausibility limit of 30%, all weight values that are within $\pm 30\%$ of the target weight are regarded as plausible and are transferred into the statistics. All other weight values are being ignored and excluded from the statistics.</p>	Numeric (30 %* 0...100)
Discharge feeder at the end	<p>Discharge is used to empty the automatic feeder of all objects.</p> <p>Active: The automatic feeder feeds at the configured discharge feed rate and stops 90 seconds after the last object has passed the light barrier.</p> <p>Inactive: No automatic emptying.</p>	Active Inactive*

Feed rate	<p>Defines the rate by which the automatic feeder delivers the parts to the balance. Select between the following options:</p> <ul style="list-style-type: none"> • Slow: Lowest feed rate • Normal: Lower intermediate feed rate • Fast: Upper intermediate feed rate • Very fast: Highest feed rate 	Slow Normal* Fast Very fast
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* Factory setting

Weighing automation

Parameter	Explanation	Values
Automatic result	<p>Automatically generates a weighing result after a threshold is reached.</p> <p>None: No automatic result will be generated.</p> <p>With sample tare: After a weight value that reached the threshold is being removed from the weighing pan, the balance is being tared.</p> <p>Without sample tare: After a weight value that reached the threshold is being removed from the weighing pan, the balance is not being tared.</p>	None* With sample tare Without sample tare
Automatic result threshold	<p>Defines the threshold of the option Automatic result. This option only appears when the option Automatic result is activated.</p>	Numeric
Weight trigger	<p>Defines the behaviour of the option Automatic result threshold.</p> <p>Exceeding: The weighing result is generated when the weight exceeds the defined threshold.</p> <p>Falling below: The weighing result is generated when the weight falls below the defined threshold.</p> <p>This option only appears when the option Automatic result is set to Without sample tare.</p>	Exceeding* Falling below
Automatic zero	<p>If Automatic zero is set to Active, the balance automatically zeros the balance when the weight falls below a predefined threshold.</p>	Active Inactive*
Automatic zero threshold	<p>Defines the threshold of the option Automatic zero. This option only appears when the option Automatic zero is activated.</p>	Numeric
Tare Mode	<p>Defines the tare mode.</p> <p>None: No automatic tare.</p> <p>Automatic tare: The balance stores automatically the first stable weight as the tare weight.</p> <p>Pretare: Allows you to enter manually a numerical entry of a fixed tare weight.</p>	None* Automatic tare Pretare

Automatic tare threshold	<p>Defines the threshold of the option Tare Mode.</p> <p>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.</p> <p>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.</p> <p>This option only appears when the option Tare Mode is set to Automatic tare.</p>	Numeric
Pretare value	<p>Defines a weight value for the pretare function.</p> <p>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.</p> <p>This option only appears when the option Tare Mode is set to Pretare.</p>	Numeric

* Factory setting

6.1.5.3.7 Print / Export

In this section the options for printing and exporting can be defined.

This section is divided into the following sub-sections:

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

Protocol printout and data export

The following parameters can be defined:

Automatic data output

Parameter	Explanation	Values
Strip printer	Activates/Deactivates the strip printer. The data to be transmitted to the printer can be defined in the section Template settings .	Active Inactive*
Protocol export	Activates/Deactivates the weighing data export.	Active Inactive*
Weight value	Activates/Deactivates the weighing value character output over USB.	Active Inactive*

* Factory setting

Protocol template for printout

Template settings

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

Parameter	Explanation
Header and Footer	Defines if a header (with title, date and time) and/or footer (with signature and end line) should be printed/exported.
Balance information	<p>Defines if the following information about the balance is being printed/exported:</p> <ul style="list-style-type: none"> • Balance type • Balance ID • Balance serial number • Firmware version

Quality information	Defines if quality information such as the used tolerance profile or test information is being printed/exported.
Task information	Defines if information about the task is being printed/exported.
Weighing item information	Defines if information about the weighing item is being printed/exported.
Result detail information	Defines if information relating to the result of the measurement is being printed/exported.

Label printout for task

The following parameters can be defined:

Parameter	Explanation	Values
Automatic label printout for task	Activates/Deactivates the option Automatic label printout for task .	Active Inactive*
Used template	To choose the label template.	Available labels
Field settings	Defines which information appears in the label fields. The number of the label fields differ depending on the selected template.	Available options depending on the selected template.
Barcode settings	Defines which information appears in the barcode. The number of the barcode fields differ depending on the selected template. The option 2D barcode delimiter appears only when the selected template in the option Used template has a 2D code.	Available options depending on the selected template.

* Factory setting

Label printout for weighing item

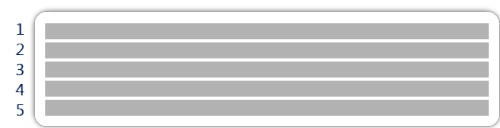
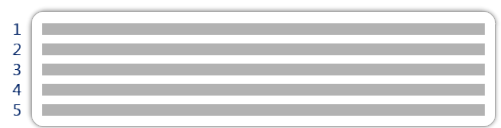
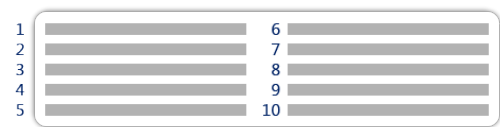
In this section the label printout options for weighing items can be defined. This section is similar to the section [Label printout for task ▶ Page 47], but it does not refer to a task but to a weighing object.



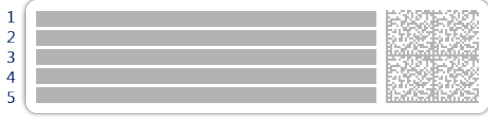

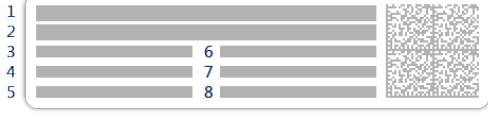
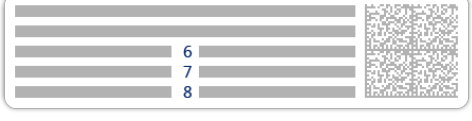
Note

Supported printers for labels are P-56RUE, P-58RUE and Citizen CLS631 (for more information **see** section [Accessories ▶ Page 140]).

Available labels

The following label printouts can be selected:

 <p>1 2 3 4 5</p> <p>5 large fields</p>	 <p>1 2 3 4 5</p> <p>5 small fields</p>
 <p>1 2 3 4 5</p> <p>6 7 8 9 10</p> <p>10 small fields</p>	 <p>1 2 3</p> <p>1D barcode with 3 large fields</p>

 <p>1 2 3</p> <p>1D barcode with 3 small fields</p>	 <p>1 2 3</p> <p>4 5 6</p> <p>1D barcode with 6 small fields</p>
 <p>1 2 3 4 5</p> <p>2D barcode with 5 large fields</p>	 <p>1 2 3 4 5</p> <p>2D barcode with 5 small fields</p>
 <p>1 2 3 4 5</p> <p>6 7 8</p> <p>2D barcode with 2 large fields and 6 small fields</p>	 <p>1 2 3 4 5</p> <p>6 7 8</p> <p>2D barcode with 8 small fields</p>

6.1.6 Simple Formulation

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

This section describes how to create a new method with the method wizard, how to work with the method and the method settings. The parameter 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 define the parameters for the weighing item ad-hoc while weighing or pre-defined on a method level for all weighing items.
- **Simple formulation with templates**: Select this method if you want to use a template to define the parameters for the weighing item. Templates are helpful to save time while weighing items with the same parameters and to ensure the consistent use of the parameters. For further information **see** [Using templates ▶ Page 69].

In the section [Method settings ▶ Page 50] the settings for both methods **Simple formulation** and **Simple formulation with templates** can be found.

6.1.6.1 Creating new method type Simple Formulation

- 1 Open the **Methods** section.
⇒ The section **Methods list** opens.
- 2 Tap **+ New method** in the action bar.
⇒ The method wizard opens, starting at step **1. Method type**.
- 3 Tap **Method type** and select the method type **Simple formulation** or **Simple formulation with templates**.
- 4 Follow the step-wise wizard.
- 5 Tap **Save method** at the end of the wizard.
⇒ The method has been created and appears in the list.

6.1.6.2 Performing 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 of the type **Simple formulation** or define a new method.
- 3 Tap **▶ Start method**.
⇒ The method work screen opens.
- 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 Place the weight on the weighing pan.
- 8 Tap **+ Add to protocol**.
⇒ The weight value is being transferred to the section **Protocol**.
- 9 Define the target weight and the tolerance limits for the second component.
- 10 Select **Component ID** to define the second component.
- 11 Place the weight on the weighing pan.
- 12 Tap **+ Add to protocol**.
⇒ The weight value is being transferred to the section **Protocol**.
- 13 Tap **Complete** and select if you want to print or to export the task protocol.
⇒ The weight task is finished and the balance returns to the method work screen.

6.1.6.3 Method settings

In this section, the settings of the methods **Simple formulation** and **Simple formulation with templates** are being described.

The section **Edit method - {0}** consists of the following sub-sections:

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

6.1.6.3.1 General

In this section general settings like the name of the method and a comment can be defined.

The following parameters can be defined:

Parameter	Explanation	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 Inactive*

* Factory setting


Note

The option **Method type** has been defined in the wizard and cannot be changed.

6.1.6.3.2 Formulation

The following parameters can be defined:

Parameter	Explanation	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* Flask volume 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 Inactive*
Calculate amount of component	Calculates the effective amount of a component based on the current weighing value.	Active Inactive*

Concentration unit	Defines the concentration unit.	mol/l* mmol/l mg/ml mg/l ug/ml g/ml g/l %
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* Flask volume Target concentration
Reference flask volume	Defines the volume of the reference flask.	Numeric (1 ml* 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.	Depending on the capacity of the balance.

* Factory setting

Production and expiry date

Parameter	Explanation	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 Current date* 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* Period 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* 1...9999 days)

* Factory setting

6.1.6.3.3 ID format

The following parameters can be defined:

Task IDs

Parameter	Explanation	Values
Number of task IDs	For a method up to three task identifiers (task IDs), such as SOP Id, Lot Id etc. can be defined. If the value of the option Number of task IDs is between 1-3, the options Task ID 1 , Description and Prefix/Default value appear for every single task ID.	0 1* 2 3

Task ID 1	Defines the value 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* Automatic timestamp
Description	Describes the option Task ID 1 .	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)
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)

* Factory setting

Result IDs

Parameter	Explanation	Values
Number of result IDs	Defines the number of result IDs. If the value of the option Number of result IDs is between 1-3, the options Result ID 1 , Description and Prefix/Default value appear for every single result ID.	0 1* 2 3
Result ID 1	Defines the value 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 Automatic counter*
Description	Describes the option Result ID 1 .	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This option only appears when the option Automatic counter is activated.	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 option Manual with default is activated.	Text (0...32 characters)

* Factory setting

6.1.6.3.4 Weighing item

In this section a target weight with tolerance limits can be defined. Depending on the selected method, the parameters for the weighing item are defined directly in the method (**Simple formulation**) or in one or more templates (**Simple formulation with templates**).

The following parameters can be defined:

Initial values for weighing

Parameter	Explanation	Values
Molar mass	Molar mass of an ion is calculated by adding the atomic weight of the individual atoms the ion is composed of. This parameter is needed for calculations of the units mol/L and mmol/L.	Numeric (1...10000)
Purity	To define the purity of the component.	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
Tolerance (min.)	Defines the under tolerance limit. This option only appears when the option Target weight is activated.	Numeric
Tolerance (max.)	Defines the upper tolerance limit. This option only appears when the option Target weight is activated.	Numeric

* Factory setting

6.1.6.3.5 Templates

Note

Detailed information about how to create templates and the use of templates can be found in the section [Using templates ▶ Page 69].

The following parameters can be defined:

Parameter	Explanation	Values
Component ID	Assigns a name to the component ID	Text (0...32 characters)
Molar mass	Molar mass of an ion is calculated by adding the atomic weight of the individual atoms the ion is composed of. This parameter is needed for calculations of the units mol/L and mmol/L.	Numeric (1...10000)
Purity	To define the purity of the component.	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 (min.)	Defines the under tolerance limit. This option only appears when the option Target weight is activated.	Numeric
Tolerance (max.)	Defines the upper tolerance limit. This option only appears when the option Target weight is activated.	Numeric
Purity	To define the purity of the component.	Numeric (0.001...100%)

6.1.6.3.6 Weighing

The following parameters can be defined:

Parameter	Explanation	Values
Show info weight	With this option activated a secondary info weight appears on the weighing screen on top of the weighing result.	Active Inactive*
Info unit	Defines the unit of the info weight. This option only appears when the option Show info weight is activated.	The available units depend on the balance model.

* Factory setting

Weighing settings

Parameter	Explanation	Values
Tolerance profile	To select a tolerance profile to use in a method. By setting up tolerance profiles you can ensure weighing tasks meet defined quality requirements and regulations. In addition, as the same profile is used each time a specific task is carried out, you can be sure of consistent settings to guarantee traceable results.	Available tolerance profiles are model-specific.

6.1.6.3.7 Automation



The following parameters can be defined:

Parameter	Explanation	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 the Task ID. Result ID 1: The received barcode data is treated as identification text for the Result ID.	Keyboard Input* Target weight value Task ID 1 Result ID 1

* Factory setting

Weighing automation

Parameter	Explanation	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 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. Pretare: Allows you to enter manually a numerical entry of a fixed tare weight.	None* Automatic tare Pretare

Automatic tare threshold	<p>Defines the threshold of the option Tare Mode.</p> <p>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.</p> <p>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.</p> <p>This option only appears when the option Tare Mode is set to Automatic tare.</p>	Numeric
Pretare value	<p>Defines a weight value for the pretare function.</p> <p>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.</p> <p>This option only appears when the option Tare Mode is set to Pretare.</p>	Numeric

* Factory setting

6.1.6.3.8 Print / Export

In this section the options for printing and exporting can be defined.

This section is divided into the following sub-sections:

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

Protocol printout and data export

The following parameters can be defined:

Automatic data output

Parameter	Explanation	Values
Strip printer	Activates/Deactivates the strip printer. The data to be transmitted to the printer can be defined in the section Template settings .	Active Inactive*
Protocol export	Activates/Deactivates the weighing data export.	Active Inactive*
Weight value	Activates/Deactivates the weighing value character output over USB.	Active Inactive*

* Factory setting

Protocol template for printout

Template settings

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

Parameter	Explanation
Header and Footer	Defines if a header (with title, date and time) and/or footer (with signature and end line) should be printed/exported.
Balance information	<p>Defines if the following information about the balance is being printed/exported:</p> <ul style="list-style-type: none"> • Balance type • Balance ID • Balance serial number • Firmware version

Quality information	Defines if quality information such as the used tolerance profile or test information is being printed/exported.
Task information	Defines if information about the task is being printed/exported.
Weighing item information	Defines if information about the weighing item is being printed/exported.
Result detail information	Defines if information relating to the result of the measurement is being printed/exported.

Label printout for task

The following parameters can be defined:

Parameter	Explanation	Values
Automatic label printout for task	Activates/Deactivates the option Automatic label printout for task .	Active Inactive*
Used template	To choose the label template.	Available labels
Field settings	Defines which information appears in the label fields. The number of the label fields differ depending on the selected template.	Available options depending on the selected template.
Barcode settings	Defines which information appears in the barcode. The number of the barcode fields differ depending on the selected template. The option 2D barcode delimiter appears only when the selected template in the option Used template has a 2D code.	Available options depending on the selected template.

* Factory setting

Label printout for weighing item

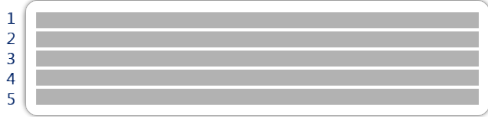
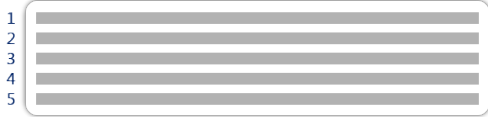
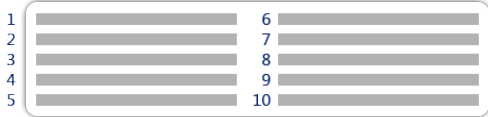

In this section the label printout options for weighing items can be defined. This section is similar to the section [Label printout for task ▶ Page 47], but it does not refer to a task but to a weighing object.



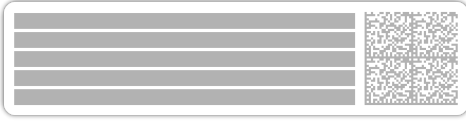
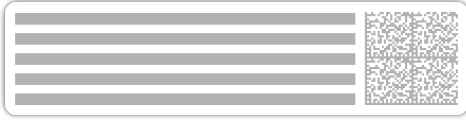
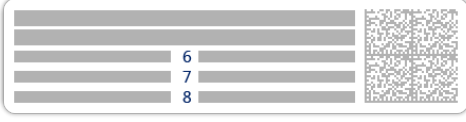
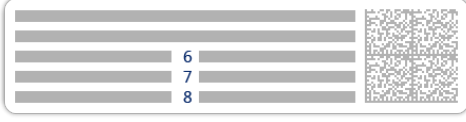
Note

Supported printers for labels are P-56RUE, P-58RUE and Citizen CLS631 (for more information **see** section [Accessories ▶ Page 140]).

Available labels

The following label printouts can be selected:

 <p>1 2 3 4 5</p> <p>5 large fields</p>	 <p>1 2 3 4 5</p> <p>5 small fields</p>
 <p>1 2 3 4 5</p> <p>6 7 8 9 10</p> <p>10 small fields</p>	 <p>1 2 3</p> <p>1D barcode with 3 large fields</p>

 <p>1 2 3</p> <p>1D barcode with 3 small fields</p>	 <p>1 2 3</p> <p>4 5 6</p> <p>1D barcode with 6 small fields</p>
 <p>1 2 3 4 5</p> <p>2D barcode with 5 large fields</p>	 <p>1 2 3 4 5</p> <p>2D barcode with 5 small fields</p>
 <p>1 2 3 4 5</p> <p>6 7 8</p> <p>2D barcode with 2 large fields and 6 small fields</p>	 <p>1 2 3 4 5</p> <p>6 7 8</p> <p>2D barcode with 8 small fields</p>

6.1.7 Piece Counting

This section describes the 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 average weight. Various methods can be used to determine the reference unit weight.

6.1.7.1 Creating new method type Piece Counting

- 1 Open the **Methods** section.
- 2 Tap **+ New method** in the action bar.
 - ⇒ The method wizard opens, starting at **1. Method type**.
- 3 Tap **Method type** and select the method type **Piece Counting**.
- 4 Tap **→ Next**.
- 5 Follow the stepwise wizard through the creating process.
- 6 Tap **Save method** to save the method.
 - ⇒ The method has been created and appears in the list.

Note

For information how to define tolerance profiles **see** section [Weighing / Quality ▶ Page 88].

6.1.7.2 Performing Piece Counting

- 1 Open the **Methods** section.
- 2 Select a defined method from the list or define a new method.
- 3 Tap **▶ Start method**.
 - ⇒ The method work screen of 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.
- 5 If not yet done, enter the average weight for one piece. This serves as reference for the piece counting.
- 6 Place the pieces on the weighing pan.
- 7 Wait until the weight is stable.
- 8 Tap **+ Add to protocol**.
 - ⇒ The weighing result appears in the protocol area on the right side of the screen.
- 9 When the weighing process is finished, tap **Complete**.
 - ⇒ The window **Complete task** appears. The result of the task can be printed on a label printer, the protocol can be printed manually or the result can be exported on an external storage device.
 - ⇒ The task **Piece Counting** was successfully completed.



Note

When you tap **Delete protocol** the current weighing process will close without saving any data. The window **Complete task** always appears after completing the task, even if the results will be saved automatically.

6.1.7.3 Method settings

In this section, the settings of the method **Piece Counting** are being described.

The section **Edit method - {0}** consists of the following sub-sections:

-  **General**
-  **ID format**
-  **Weighing item**
-  **Weighing**

-  **Automation**
-  **Print / Export**

6.1.7.3.1 General

The following parameters can be defined:

Parameter	Explanation	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 Inactive*

* Factory setting

Note

The option **Method type** has been defined in the wizard and cannot be changed.

6.1.7.3.2 ID format

The following parameters can be defined:

Task IDs

Parameter	Explanation	Values
Number of task IDs	For a method up to three task identifiers (task IDs), such as SOP Id, Lot Id etc. can be defined. If the value of the option Number of task IDs is between 1-3, the options Task ID 1 , Description and Prefix/Default value appear for every single task ID.	0 1* 2 3
Task ID 1	Defines the value 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* Automatic timestamp
Description	Describes the option Task ID 1 .	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	Explanation	Values
Number of result IDs	Defines the number of result IDs. If the value of the option Number of result IDs is between 1-3, the options Result ID 1 , Description and Prefix/Default value appear for every single result ID.	0 1* 2 3

Result ID 1	Defines the value 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 Automatic counter*
Description	Describes the option Result ID 1 .	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This option only appears when the option Automatic counter is activated.	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 option Manual with default is activated.	Text (0...32 characters)

6.1.7.3.3 Weighing item

The following parameters can be defined:

Initial values for weighing

Parameter	Explanation	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* 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 (min.)	Defines the under tolerance limit. This option only appears when the option Target weight is activated.	Numeric
Tolerance (max.)	Defines the upper tolerance limit. This option only appears when the option Target weight is activated.	Numeric

* Factory setting

6.1.7.3.4 Weighing

The following parameters can be defined:

Parameter	Explanation	Values
Show info weight	With this option activated a secondary info weight appears on the weighing screen on top of the weighing result.	Active Inactive*
Info unit	Defines the unit of the info weight. This option only appears when the option Show info weight is activated.	The available units depend on the balance model.

* Factory setting

Weighing settings

Parameter	Explanation	Values
Tolerance profile	To select a tolerance profile to use in a method. By setting up tolerance profiles you can ensure weighing tasks meet defined quality requirements and regulations. In addition, as the same profile is used each time a specific task is carried out, you can be sure of consistent settings to guarantee traceable results.	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* 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 Immediate is selected.	Numeric (5 seconds* 0..60 seconds)

* Factory setting

Statistics

Activate statistics	If Activate statistics is set to Active , the following statistics will be calculated: <ul style="list-style-type: none"> • Count: Number of items used for the statistics. • Sum: The displayed values are summed up. • Minimum: The minimal displayed value. • Maximum: The maximum displayed value. • Average: The displayed values are summed up and divided by the count of values summed up. The result is rounded to the balance resolution. • Standard deviation • Relative standard deviation The statistical values are calculated and visualized as soon as a result is added or updated.	Active Inactive*
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* Factory setting

6.1.7.3.5 Automation



The following parameters can be defined:

Parameter	Explanation	Values
Barcode data target	<p>If a barcode reader is connected to the balance, this option defines how the data is to be processed.</p> <p>Keyboard Input: The data is written in the currently open input window. If no input window is open, the data is ignored.</p> <p>Target weight value: The barcode data is interpreted as a value for the target weight.</p> <p>Task ID 1: The received barcode data is treated as identification text for the Task ID.</p> <p>Result ID 1: The received barcode data is treated as identification text for the Result ID.</p>	Keyboard Input* Target weight value Task ID 1 Result ID 1

* Factory setting

Weighing automation

Parameter	Explanation	Values
Automatic result	<p>Automatically generates a weighing result after a threshold is reached.</p> <p>None: No automatic result will be generated.</p> <p>With sample tare: After a weight value that reached the threshold is being removed from the weighing pan, the balance is being tared.</p> <p>Without sample tare: After a weight value that reached the threshold is being removed from the weighing pan, the balance is not being tared.</p>	None* With sample tare Without sample tare
Automatic result threshold	<p>Defines the threshold of the option Automatic result. This option only appears when the option Automatic result is activated.</p>	Numeric
Weight trigger	<p>Defines the behaviour of the option Automatic result threshold.</p> <p>Exceeding: The weighing result is generated when the weight exceeds the defined threshold.</p> <p>Falling below: The weighing result is generated when the weight falls below the defined threshold.</p> <p>This option only appears when the option Automatic result is set to Without sample tare.</p>	Exceeding* Falling below
Automatic zero	<p>If Automatic zero is set to Active, the balance automatically zeros the balance when the weight falls below a predefined threshold.</p>	Active Inactive*
Automatic zero threshold	<p>Defines the threshold of the option Automatic zero. This option only appears when the option Automatic zero is activated.</p>	Numeric
Tare Mode	<p>Defines the tare mode.</p> <p>None: No automatic tare.</p> <p>Automatic tare: The balance stores automatically the first stable weight as the tare weight.</p> <p>Pretare: Allows you to enter manually a numerical entry of a fixed tare weight.</p>	None* Automatic tare Pretare

Automatic tare threshold	<p>Defines the threshold of the option Tare Mode.</p> <p>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.</p> <p>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.</p> <p>This option only appears when the option Tare Mode is set to Automatic tare.</p>	Numeric
Pretare value	<p>Defines a weight value for the pretare function.</p> <p>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.</p> <p>This option only appears when the option Tare Mode is set to Pretare.</p>	Numeric

* Factory setting

6.1.7.3.6 Print / Export

In this section the options for printing and exporting can be defined.

The following parameters can be defined:

Automatic data output

Parameter	Explanation	Values
Strip printer	Activates/Deactivates the strip printer. The data to be transmitted to the printer can be defined in the section Template settings .	Active Inactive*
Protocol export	Activates/Deactivates the weighing data export.	Active Inactive*
Weight value	Activates/Deactivates the weighing value character output over USB.	Active Inactive*

* Factory setting

Protocol template for printout

Template settings

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

Parameter	Explanation
Header and Footer	Defines if a header (with title, date and time) and/or footer (with signature and end line) should be printed/exported.
Balance information	<p>Defines if the following information about the balance is being printed/exported:</p> <ul style="list-style-type: none"> • Balance type • Balance ID • Balance serial number • Firmware version
Quality information	Defines if quality information such as the used tolerance profile or test information is being printed/exported.
Task information	Defines if information about the task is being printed/exported.
Weighing item information	Defines if information about the weighing item is being printed/exported.

Result detail information	Defines if information relating to the result of the measurement is being printed/exported.
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* Factory setting

6.1.8 Interval Weighing

This section describes the method **Interval weighing**. With the method **Interval weighing** a number of measurements and the time interval for each measurement can be defined.

6.1.8.1 Creating new method type Interval Weighing

- 1 Open the **Methods** section.
- 2 Tap **+ New** in the action bar.
⇒ The method wizard opens, starting at **1. Method type**.
- 3 Tap **Method type** and select **Interval weighing**.
- 4 Follow the stepwise wizard through the creating process.
- 5 Tap **Save method** at the end of the wizard.
⇒ The method has been created and appears in the list.

6.1.8.2 Performing Interval weighing

This section describes how the method **Interval weighing** is being used in a task.

- 1 Open the **Methods** section.
- 2 Select a pre-defined method from the list or define a new method.
- 3 Tap **Start method**.
⇒ The method workscreen of the selected method opens.
- 4 Press **→0←** to zero the balance.
- 5 If a container is used, place the container on the weighing pan and press **→T←** to tare the balance.
- 6 Tap **Start**.
⇒ The defined method is being executed. The **Protocol** section shows the current counter.
- 7 Wait until the process is finished.
⇒ The **Protocol** section opens and shows a summary of the weighing results.

Note

The current weighing process can also be stopped by tapping **Stop**.

- 8 Tap **Complete** to open the Export options.
⇒ The dialog **Complete task** appears.
- 9 Tap **Export protocol manually** to export the weighing results to an external USB storage device or tap **Complete** to finish the task.

Note

After completing the task, the results will be deleted from the protocol.

6.1.8.3 Method settings

The section **Interval weighing** consists of the following sub-sections:

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

6.1.8.3.1 General

The following parameters can be defined:

Parameter	Explanation	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 Inactive*

* Factory setting

Note

The option **Method type** has been defined in the wizard and cannot be changed.

6.1.8.3.2 Interval

The following parameters can be defined:

Parameter	Explanation	Values
Approximate interval	Defines the duration of a single weighing interval	Numeric (1 s* 0.5...60 s)
Measurements	Defines the total number of measurements.	Numeric (3600* 1...5000)

* Factory setting

Note

The parameter **Duration** shows the duration for the method in relation to the values defined for the parameters **Approximate interval** and **Measurements**.

6.1.8.3.3 ID format

The following parameters can be defined:

Task IDs

Parameter	Explanation	Values
Number of task IDs	For a method up to three task identifiers (task IDs), such as SOP Id, Lot Id etc. can be defined. If the value of the option Number of task IDs is between 1-3, the options Task ID 1 , Description and Prefix/Default value appear for every single task ID.	0 1* 2 3
Task ID 1	Defines the value 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* Automatic timestamp
Description	Describes the option Task ID 1 .	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)
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* Factory setting

6.1.8.3.4 Weighing item

The following parameters can be defined:

Initial values for weighing

Parameter	Explanation	Values
Unit	Defines the initial value for the weighing process.	The available units depend on the balance model.

* Factory setting

6.1.8.3.5 Weighing

The following parameters can be defined:

Parameter	Explanation	Values
Show info weight	With this option activated a secondary info weight appears on the weighing screen on top of the weighing result.	Active Inactive*
Info unit	Defines the unit of the info weight. This option only appears when the option Show info weight is activated.	The available units depend on the balance model.

* Factory setting

Weighing settings

Parameter	Explanation	Values
Tolerance profile	To select a tolerance profile to use in a method. By setting up tolerance profiles you can ensure weighing tasks meet defined quality requirements and regulations. In addition, as the same profile is used each time a specific task is carried out, you can be sure of consistent settings to guarantee traceable results.	Available tolerance profiles are model-specific.

6.1.8.3.6 Automation

The following parameters can be defined:

Parameter	Explanation	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 the Task ID.	Keyboard Input* Task ID 1

* Factory setting

6.1.8.3.7 Print / Export

In this section the options for printing and exporting can be defined.

The following parameters can be defined:

Automatic output

Parameter	Explanation	Values
Protocol export	Activates/Deactivates the weighing data export.	Active Inactive*

* Factory setting

6.1.9 Using templates

This section describes how to work with templates.

Working with templates simplifies the task and improves the quality of the whole working process. Characteristic information such as a certain target weight 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** are methods in which templates are being used.

6.1.9.1 Defining 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 ad-hoc during a task.

Note

Defining templates is a single step in the method creating process. In this section we only describe how to create templates. For more information about how defining a method see in the sections of the different methods.

6.1.9.1.1 Defining templates in 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 (min.)** and **Tolerance (max.)** appear.
- 7 Tap **Tolerance (min.)** to define the lower tolerance.
- 8 Tap **Tolerance (max.)** to define the upper tolerance.
- 9 Tap **→ Next**.
- 10 Tap  **Save method**.
 - ⇒ 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.

6.1.9.1.2 Defining templates in a current task

It is also possible to create templates ad-hoc in a current task. This example describes how to create templates for the method **General Weighing**, respectively for the method **General Weighing with templates**.

- 1 Start the method **General Weighing**.
- 2 Perform 3 weighings and add the results to the protocol by tapping **+ Add to protocol**.
 - ⇒ The results appear in the section **Protocol** on the right side of the screen.
- 3 Tap **⋮ More**.
- 4 Tap  **Save as method with templates**.

- 5 Define **Method name**.
 - 6 Tap ✓ **OK**.
- ⇒ The method **General Weighing** has changed to the method **General Weighing with templates**. Tap the results in the section **Protocol** and define the options for the template.

6.1.9.2 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 list or define a new method.
- 3 Tap ► **Start method**.
 - ⇒ The method work screen opens. The target weight and the tolerance limits that have been defined in the template appear.

6.2 Tasks

A method will be held as a task in the task section of the methods menu. It will be paused as a task if any other method is launched without the current method being completed. The method can be paused if it contains one or more weighing results, or has had certain method settings changed.

Navigation: ▼ **Methods** >  **Tasks**

Note

The method that is currently used in the background is labeled with the symbol  and cannot be canceled. To cancel the task, another task must be activated.

6.3 Tests

In this section routine tests such as sensitivity tests, repeatability tests or eccentricity tests can be defined, edited and performed. 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**

6.3.1 Sensitivity test

The sensitivity of the balance defines the degree of responsiveness to a change of load. In other words the sensitivity defines the minimal variation in mass the balance can detect. Therefore, a mass smaller than the sensitivity of a balance will not be detectable. The sensitivity test allows you to measure the sensitivity using one or two test points.

The following test types are available:

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

6.3.2 Repeatability test

The repeatability test calculates the mean and 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 implies the repeatability.

Note

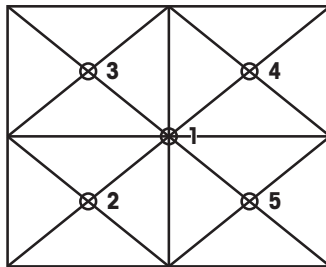
Repeatability is highly affected by the ambient conditions (drafts, temperature fluctuations and vibrations) and also by the skill of the person performing the weighing. Therefore, the series of measurements must be carried out by the same operator, in the same location, under constant ambient conditions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

The following test types are available:

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

6.3.3 Eccentricity test

The purpose of the eccentricity test is to ensure that every eccentric load deviation (corner-load deviation) is within the necessary 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 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 (2–5).

6.3.4 Creating a test

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



To create a test proceed as follows:

- 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 step before.

For information concerning the settings for the different test types **see** the following chapters:

- [Sensitivity test settings ▶ Page 72]
- [Repeatability test settings ▶ Page 75]
- [Eccentricity test settings ▶ Page 78]

6.3.5 Performing a test

- 1 Open the **Methods** section.
- 2 Tap  **Tests**.
⇒ The test(s) previously defined appear on the list.
- 3 Select the test you wish to perform and tap  **Start**
⇒ The test sequence starts. Follow the instructions.
⇒ When the test was successfully finished, the test results can be exported or printed.

6.3.6 Test settings

6.3.6.1 Sensitivity test settings

The following parameters can be defined:

1. Name and type

Parameter	Explanation	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* Inactive
Show preparation instructions	If activated, a predefined preparatory instruction is displayed in the test sequence.	Active* Inactive
Automatic print	When activated test results are immediately printed after the test result has been calculated on the enabled printer.	Active Inactive*

* Factory setting

2. Test specification

Parameter	Explanation	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* On actual weight (CMV)

* Factory setting

Tare

Note

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

Parameter	Explanation	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	Explanation	Values
Nominal weight	Defines the value for the nominal weight. The nominal weight is defined as the expected weight of the measured object.	Numeric
Weight class	Defines the weight class according to OIML or ASTM.	E1 E2 F1 F2 M1 M2 M3 ASTM000 ASTM00 ASTM0 ASTM0 ASTM1 ASTM2 ASTM3 ASTM4 ASTM5 ASTM6 ASTM7 Own*

Control limit	<p>Defines the control limit.</p> <p>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.</p> <p>Result if the control limit is exceeded: The test failed, the balance is out of specification.</p>	Numeric 0.2 %* (0.001 ... 100%)
Warning limit	<p>Defines the warning limit.</p> <p>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.</p> <p>Result if the warning limit is exceeded: The test is passed, but the difference is higher than expected.</p>	Numeric (0.001 ... 100%)

* Factory setting

3. Test weights

In this section a test weight can be defined. For information concerning the test weight settings **see** [Defining external test weights ▶ Page 82].

4. Error management

Parameter	Explanation	Values
Block balance	<p>Defines the behavior of the balance if a test has failed.</p> <p>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.</p> <p>Inactive: Blocking is not activated.</p>	Active Inactive*
Allowed number of retries	Defines the maximum allowed retries until the balance will be blocked.	Numeric (3* 0...9)

* Factory setting

5. Test planning

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

* Factory setting

Notification



Note

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

Parameter	Explanation	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

Note

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

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

Preferred day for execution

Note

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

Parameter	Explanation	Values
Day	Defines the preferred day for execution of the test.	None* Monday Tuesday Wednesday Thursday Friday Saturday Sunday
Occurrence of day	Defines the occurrence of a given day of week within a month.	First* Second Third Fourth

* Factory setting

6.3.6.2 Repeatability test settings

The following parameters can be defined:

1. Name and type

Parameter	Explanation	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* Inactive
Show preparation instructions	If activated, a predefined preparatory instruction is displayed in the test sequence.	Active* Inactive
Automatic print	When activated test results are immediately printed after the test result has been calculated on the enabled printer.	Active Inactive*

* Factory setting

2. Test specification

Parameter	Explanation	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* On actual weight (CMV)
Number of repetitions	Defines the number of weight measurements of a series.	Numeric 10* (2...15)

* Factory setting

Tare

Note

This section only appears when the option **Test type** is set to **Repeatability - Tare - 1 test point**.

Parameter	Explanation	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	Explanation	Values
Nominal weight	Defines the value for the nominal weight. The nominal weight is defined as the expected weight of the measured object.	Numeric
Weight class	Defines the weight class according to OIML or ASTM.	E1 E2 F1 F2 M1 M2 M3 ASTM000 ASTM00 ASTM0 ASTM1 ASTM2 ASTM3 ASTM4 ASTM5 ASTM6 ASTM7 Own*

* Factory setting

Test limits

Parameter	Explanation	Values
Control limit	<p>Defines the control limit.</p> <p>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.</p> <p>Result if the control limit is exceeded: The test failed, the balance is out of specification.</p>	Numeric 0.2 %* (0.001 ... 100%)
Warning limit	<p>Defines the warning limit.</p> <p>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.</p> <p>Result if the warning limit is exceeded: The test is passed, but the difference is higher than expected.</p>	Numeric (0.001 ... 100%)

* Factory setting

3. Test weights

In this section a test weight can be defined. For information concerning the test weight settings **see** [Defining external test weights ► Page 82].

4. Error management

Parameter	Explanation	Values
Block balance	<p>Defines the behavior of the balance if a test has failed.</p> <p>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.</p> <p>Inactive: Blocking is not activated.</p>	Active Inactive*
Allowed number of retries	Defines the maximum allowed retries until the balance will be blocked.	Numeric (3* 0...9)

* Factory setting

5. Test planning

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

* Factory setting

Notification

Note

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

Parameter	Explanation	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

Note

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

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

Preferred day for execution

Note

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

Parameter	Explanation	Values
Day	Defines the preferred day for execution of the test.	None* Monday Tuesday Wednesday Thursday Friday Saturday Sunday
Occurrence of day	Defines the occurrence of a given day of week within a month.	First* Second Third Fourth

* Factory setting

6.3.6.3 Eccentricity test settings

The following parameters can be defined:

1. Name and type

Parameter	Explanation	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* Inactive
Show preparation instructions	If activated, a predefined preparatory instruction is displayed in the test sequence.	Active* Inactive
Automatic print	When activated test results are immediately printed after the test result has been calculated on the enabled printer.	Active Inactive*

* Factory setting

2. Test specification

Parameter	Explanation	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* On actual weight (CMV)

* Factory setting

Test point

Parameter	Explanation	Values
Nominal weight	Defines the value for the nominal weight. The nominal weight is defined as the expected weight of the measured object.	Numeric
Weight class	Defines the weight class according to OIML or ASTM.	E1 E2 F1 F2 M1 M2 M3 ASTM000 ASTM00 ASTM0 ASTM0 ASTM1 ASTM2 ASTM3 ASTM4 ASTM5 ASTM6 ASTM7 Own*

* Factory setting

Eccentricity limits

Parameter	Explanation	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 0.2 %* (0.001 ... 100%)

Warning limit	<p>Defines the warning limit.</p> <p>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.</p> <p>Result if the warning limit is exceeded: The test is passed, but the difference is higher than expected.</p>	Numeric (0.001 ... 100%)
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* Factory setting

3. Test weights

In this section a test weight can be defined. For information concerning the test weight settings **see** [Defining external test weights ▶ Page 82].

4. Error management

Parameter	Explanation	Values
Block balance	<p>Defines the behavior of the balance if a test has failed.</p> <p>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.</p> <p>Inactive: Blocking is not activated.</p>	Active Inactive*
Allowed number of retries	Defines the maximum allowed retries until the balance will be blocked.	Numeric (3* 0...9)

* Factory setting

5. Test planning

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

* Factory setting

Notification

Note

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

Parameter	Explanation	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

Note

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

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

Preferred day for execution

Note

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

Parameter	Explanation	Values
Day	Defines the preferred day for execution of the test.	None* Monday Tuesday Wednesday Thursday Friday Saturday Sunday
Occurrence of day	Defines the occurrence of a given day of week within a month.	First* Second Third Fourth

* Factory setting

6.4 Adjustments




This section describes how internal and external adjustments can be defined and performed.

Navigation: ▾ **Methods** >  **Adjustments**

6.4.1 Internal adjustment


6.4.1.1 Editing internal adjustment


This section describes how to edit the function **Internal adjustment**. There is no wizard function, the sub-sections must be defined manually.

- 1 Open the **Methods** section.
 - 2 Tap  **Adjustments**.
 - 3 Select the defined adjustment.
 - 4 Tap  **Edit**.
 - 5 Select **Internal adjustment**.
 - 6 Define the adjustment parameters.
- ⇒ Tap  **OK** when all the parameters have been defined.

6.4.1.2 Performing internal adjustment

After the internal adjustment has been defined, it can be performed.

- 1 Open the **Methods** section.
- 2 Tap  **Adjustments**.
- 3 Tap the internal adjustment.

- 4 Tap ► **Start**.
 - ⇒ The function **Internal adjustment** is being executed.
 - ⇒ When the adjustment has been completed, an overview of the adjustment results appears.
- 5 Tap  **Print** to print the results.
- 6 Tap ✓ **Finish adjustment**.

6.4.1.3 Parameters

1. Strategy

The following parameters can be defined:

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

* Factory setting

2. Specification

The following parameters can be defined:

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

* Factory setting

Limits

Note

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

The following parameters can be defined:

Parameter	Explanation	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 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

The following parameters can be defined:

Parameter	Explanation	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 Inactive*

* Factory setting

4. Planning

The following parameters can be defined:

Parameter	Explanation	Values
Start after leveling	Defines if the internal adjustment starts after leveling.	Active Inactive*
Start after temperature change	Defines if the internal adjustment starts after a temperature change.	Active 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* 1 start time 2 start times 3 start times
Start time	Defines the start time for executing the task.	Time
Preferred days	Defines the days for the scheduled adjustments. This section only appears with a defined start time.	Monday Tuesday Wednesday Thursday Friday Saturday Sunday

* Factory setting

6.4.2 External adjustment





Note

Because of certification legislation, approved balances cannot be adjusted with an external weight (depending on the certification legislation of the selected country).

6.4.2.1 Editing external adjustment

Compared to the function **Internal adjustment** there are no options for the function **External adjustment** that can be defined. The weighing process cannot be planned as in the function **Internal adjustment** because there are external weights being used. However, the test weights for the function **External adjustment** need to be defined.

6.4.2.1.1 Defining external test weights

- 1 Open the **Methods** section.
- 2 Tap  **Adjustments**.
- 3 Select the option **External adjustment**.
- 4 Tap  **Edit test weights**.
⇒ The dialogue **Edit test weights** appears.
- 5 Tap  **New test weight**.
- 6 Define the test weight settings and confirm with  **OK**.

6.4.2.1.2 Parameters



The following parameters can be defined:

Parameter	Explanation	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 value for the nominal weight. The nominal weight is defined as the expected weight value of the weight.	Numeric
Weight class	Defines the weight class according to OIML or ASTM.	E1 E2 F1 F2 M1 M2 M3 ASTM000 ASTM00 ASTM0 ASTM1 ASTM2 ASTM3 ASTM4 ASTM5 ASTM6 ASTM7 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 date of the next calibration date.	Date
Certificate	Defines if the certificate is activated or deactivated.	Active 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)


* Factory setting

6.4.2.2 Performing external adjustment

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

- 1 Open the **Methods** section..
- 2 Tap  **Adjustments**.
- 3 Tap the external adjustment.
- 4 Tap  **Start**.
⇒ The adjustment process starts. Follow the instructions on the screen.
- 5 The results of the adjustment process can be printed.

7 Balance Menu

In the section **Balance menu** the basic settings of the balance can be defined. These settings are of a general character and are not directly related to any specific method. To open the section **Balance menu** tap the drawer symbol  on the left side of the screen.

The section **Balance menu** is divided into the following sub-sections:

- **Leveling aid** (see section [Leveling aid ▶ Page 84])
- **History** (see section [History ▶ Page 84])
- **Balance info** (see section [Balance info ▶ Page 85])
- **User management** (see section [User management ▶ Page 85])
- **Settings** (see section [Settings ▶ Page 87])
- **Maintenance** (see section [Maintenance ▶ Page 95])

7.1 Leveling aid

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

For detailed information see section [Leveling the balance ▶ Page 33].

Navigation: ▶ **Balance menu** >  **Leveling aid**

Note

To guarantee correct weighing results the balance must always be leveled. After leveling the balance an internal adjustment must be performed.

Note

When using an L weighing platform tap **Change orientation** depending if the terminal is installed on the long side or on the short side of the weighing platform.

7.2 History




The balance permanently records the tests and adjustments that are performed. In the section **History** detailed information about performed adjustments, tests and service modifications can be displayed.

Navigation: ▶ **Balance menu** >  **History**

The section **History** is divided into the following sub-sections:




- **Adjustments** (see section [Adjustments ▶ Page 84])
- **Tests** (see section [Tests ▶ Page 84])
- **Service** (see section [Service ▶ Page 85])
- **Changes** (see section [Changes ▶ Page 85])

7.2.1 Adjustments

In the section **Adjustments** a list of the performed adjustments is displayed. Tap into the list to display detailed information about a specific adjustment. Tap  **Filter** to filter the performed adjustments by a defined date range or by a user ID. Tap  **Print** to print the list or tap  **Close** to return to the section **History**.




Navigation: ▶ **Balance menu** >  **History** >  **Adjustments**

7.2.2 Tests

In the section **Tests** a list of the performed tests is displayed. Tap into the list to display detailed information about a specific test. Tap  **Filter** to filter the performed tests by a defined date range or by a user ID. Tap  **Print** to print the list or tap  **Close** to return to the section **History**.




Navigation: ▶ **Balance menu** >  **History** >  **Tests**

7.2.3 Service




In the section **Service** a list of executed services is displayed. Tap into the list to display detailed information about the service action. Tap  **Filter** to filter the performed service actions by a defined date range or by technician. Tap  **Print** to print the list of service actions. Tap  **Close** to return to the section **History**.

Navigation: ▶ **Balance menu** >  **History** >  **Service**




7.2.4 Changes

The function **Change history** is an administration tool to improve the quality of the weighing process. Information such as added methods or settings changes are being listed. Tap into the list to display detailed information about the data. Tap  **Filter** to filter the data by a defined date range or by a user ID. Tap  **Print** to print the list or tap  **Close** to return to the section **History**.




The following data categories can appear on the list:

-  Settings have been changed.
-  Object has been added.
-  Object has been deleted.

Navigation: ▶ **Balance menu** >  **History** >  **Changes**

Tap  **Filter** to filter the data by a defined date range or by a user ID. Tap  **Print** to print the list or tap  **Close** to return to the section **History**.

The following data categories can appear on the list:

-  Settings have been changed.
-  Object has been added.
-  Object has been deleted.

Note

The function **Change history** can be activated via **Settings** > **Weighing / Quality**.

7.3 Balance info

The section **Balance info** shows numerous information about the balance such as version numbers, maintenance information and used licenses.

Navigation: ▶ **Balance menu** >  **Balance info**

7.4 User management

In the section **User management** rights for users and user groups can be defined. Users can be assigned to user groups, rights can be defined for all users of a user group.

Navigation: ▶ **Balance menu** >  **Users**




Note

The section **User management** can be activated via **Settings** > **General** > **User management**

Note

An overview of all users and user groups can be printed by tapping  **Print all**.

The section **User management** is divided into the following sub-sections:

-  **General** defines general settings for all user profiles (**see** section [General ▶ Page 85]).
-  **Users** defines the settings for a single users (**see** section [Users ▶ Page 86]).
-  **Groups** defines the settings for the user groups (**see** section [Groups ▶ Page 87]).

7.4.1 General

In this section, general user management settings can be defined.

Navigation: ▶ Balance menu >  Users >  General

7.4.1.1 Parameters

The following parameters can be defined:

Parameter	Explanation	Values
Automatic logoff	With the option Automatic logoff activated, the balance will automatically log off after a predefined time.	Active* Inactive
Wait time	With the option Wait time the time until the balance logs off can be defined. The option Wait time only appears when the option Automatic logoff is activated.	Numeric (15 minutes* 1...60 minutes)
User proposals	The option User proposals defines, if a list of users will appear on the login screen.	Active* Inactive
Password reset	Defines if the password can be reset from the login screen.	Allowed* Not allowed


* Factory setting

7.4.2 Users

In this section new user profiles can be created and existing user profiles can be managed.

Navigation: ▶ Balance menu >  Users >  Users

7.4.2.1 Creating new user

- 1 Tap **+** **New user** in the action bar.
- 2 Define the values for the new user.
- 3 To define a user profile password, tap  **Change password** in the action bar.
- 4 Tap **New password**.
⇒ The keyboard dialogue opens.
- 5 Define the password.
- 6 Tap **Confirm new password** and fill in the defined password.
- 7 Tap ✓ to close the keyboard dialogue.
- 8 Tap ✓ **OK** to confirm the defined password.
⇒ The dialogue **User ID** opens.
- 9 Tap ✓ **OK** to confirm the defined user profile.
⇒ The user has been created. The new user profile appears in the list.

7.4.2.2 Parameters

The following parameters can be defined:

Parameter	Explanation	Values
User ID	Defines the user ID. When the user profile has been defined, the value for User ID will be fixed and cannot be changed afterwards.	Text (1...22 characters)
Last name	To define the last name of the user.	Text (0...22 characters)
First name	To define the first name of the user.	Text (0...22 characters)
Active	To activate or deactivate the current user.	Active* Inactive
Assigned groups	To assign the user to user groups.	List of defined groups
User language	Defines the language of the user profile.	Available languages

* Factory setting

7.4.3 Groups



In this section the options for user groups can be defined.

Navigation: ▶ Balance menu >  Users >  Groups

Note

This area is only accessible for users with the appropriate rights.

7.4.3.1 Creating new group

- 1 Tap  **New group**.
⇒ The dialogue screen for defining the group properties opens.
- 2 Define the group properties.
- 3 Tap  **OK**.
⇒ The group has been created, the system returns to the list of defined groups.

7.4.3.2 Parameters

The following parameters can be defined:

Parameter	Explanation	Values
Group name	Defines the name of the group.	Text (1 ... 22 characters)

General permissions

Parameter	Explanation	Values
Block / unblock balance	Defines if the group is allowed to block or unblock the balance.	Active Inactive
Configure methods	Defines if the group is allowed to configure methods.	Active Inactive
Execute service commands	Defines if the group is allowed to perform service commands.	Active Inactive
Configure system	Defines if the group is allowed to configure system settings.	Active Inactive
Configure user management	Defines if the group is allowed to configure the user management.	Active Inactive



Quality management permissions



Parameter	Explanation	Values
Start external adjustment	Defines if the group is allowed to perform external adjustments.	Active Inactive
View change history	Defines if the group is allowed to see the option Change history .	Active Inactive
Configure routine tests / GWP	Defines if the group is allowed to configure routine tests or GWP.	Active Inactive
Start routine tests	Defines if the group is allowed to perform routine tests.	Active Inactive

7.5 Settings

Navigation: ▶ Balance menu >  Settings

The section **Settings** is divided into the following sub-sections:

-  **Balance** (see section [Balance ▶ Page 88])
-  **Interfaces** (see section [Interfaces ▶ Page 93])

-  **Devices / Printers** (see section [Devices / Printers ▶ Page 94])
-  **LabX / Services** (see section [LabX / Services ▶ Page 94])






 **Note**

The system settings can be printed by tapping  **Print the settings** in the action bar at the bottom of the screen.

7.5.1 Balance

Navigation: ▶ **Balance menu** >  **Settings** >  **Balance**

The section **Balance** is divided into the following sub-sections:

-  **Weighing instrument** (see section [Weighing instrument ▶ Page 88])
-  **Weighing / Quality** (see section [Weighing / Quality ▶ Page 88])
-  **Date / Time / Language / Format** (see section [Date / Time / Language / Format ▶ Page 92])
-  **Screen / StatusLight / Sound** (see section [Screen / StatusLight / Sound ▶ Page 92])
-  **General** (see section [General ▶ Page 93])

7.5.1.1 Weighing instrument

The following parameters can be defined:

Parameter	Explanation	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 Optional leveling* Forced leveling

* Factory setting

7.5.1.2 Weighing / Quality

In this section the quality settings for the weighing process can be defined.

The following parameters can be defined:

Parameter	Explanation	Values
Tolerance profiles	By setting up tolerance profiles you can ensure weighing tasks meet defined quality requirements and regulations. In addition, as the same profile is used each time a specific task is carried out, you can be sure of consistent settings to guarantee traceable results. This option has several sub-sections and is described later in this chapter.	
Automatic weight value output	Defines if and in which manner (MT-SICS or HID) the weighing values should be exported. This option has several sub-sections and is described later in this chapter.	

GWP Approved mode	<p>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.</p> <p>The GWP Approved mode observes if the following conditions are given:</p> <ul style="list-style-type: none"> • Use of an appropriate tolerance profile. • FACT was successful. • Required tests were successful. • Setting up of enforced leveling. • No MinWeigh violation. <p>If all conditions are given, the balance adds the GWP Approved sign behind every weighing result.</p> <p>The GWP Approved mode can only be enabled by a METTLER TOLEDO service technician.</p>	Active Inactive*
Change history	<p>Activates/Deactivates the option Change history.</p> <p>The change history is used to log changes to system settings, user management and methods as well as other settings and configurations. The following information is stored:</p> <ul style="list-style-type: none"> • User ID and timestamp • Object identifier • Old values and new values of attributes <p>For more information see section Change History.</p>	Active Inactive*
Balance recalibration reminder	Defines whether the user is reminded about the upcoming expiry date of the calibration.	Active* Inactive
Days in advance	Defines the number of days before the reminder informs about the upcoming expiry date.	Days (30 days* 0...400 days)
Action when calibration expired	<p>Defines the action when the calibration has expired.</p> <p>Block: The balance will be blocked. In this case, the balance can not be used anymore until a user with the appropriate right unblocks the balance.</p>	None* Block
Days before blocking	Defines the number of days before the reminder informs about the upcoming blocking of the balance.	Days (0 days* 0...400 days)
Test weight recalibration reminder	Defines whether the user is reminded about the upcoming expiry date of the test weight calibration.	Active Inactive*
Days in advance	Defines the number of days before the reminder informs about the upcoming expiry date.	Days (30 days* 0...400 days)
Service reminder	Defines whether the user is reminded about the upcoming due date of the service.	Active Inactive*
Days in advance	Defines the number of days before the reminder informs about the upcoming due date.	Days (30 days* 0...400 days)

* Factory setting

Tolerance profiles

In this section profiles for weighing settings and tolerances can be defined.

Creating 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.

 **Note**

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

The following parameters can be defined:

Parameter	Explanation	Values
Name	Defines the name of the profile.	Text (0...22 characters)
Calibration certificate	To select a calibration certificate.	Calibration certificate None*
Environment	Defines the environmental conditions of the balance. Stable: For an environment which is practically free from drafts and vibrations. Standard: For an average working environment subject to moderate variations in the ambient conditions. Very unstable: For an environment where the conditions are continuously changing.	Very stable Stable Standard Unstable Very unstable
Weighing mode	Defines the filter settings of the balance. Universal: For all standard weighing applications. Dosing: For dosing liquid or powdery products. With this setting, the balance responds very quickly to the smallest changes in weight. 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. Check weighing: With this setting, the balance only reacts to significant changes in weight and results are very stable. Dynamic: The dynamic weighing function determines the average weight of a moving sample.	Universal* Dosing Sensor mode Check weighing Dynamic
Value release	Defines how fast a measured value is recognized by the balance as stable and released. Very fast: For fast value release with increased repeatability. Very reliable: For extended settling time with low repeatability.	Very fast* Fast Fast and reliable Reliable 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* 2d 5d 10d 100d 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. This menu option is not available for "Approved balances", as the settings are predefined.	Active* 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 PC with a USB cable. That way, the weighing data can be transferred to the PC and weighing results can be directly transferred into an application (e.g. Microsoft Excel).

The following parameters can be defined:

Parameter	Explanation	Values
Target	Defines the way the weighing values are transferred. HID : 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. the balance can also receive confirmations or commands from the host. A separate reference manual is available for MT-SICS.	HID* MT-SICS Both
Weight field length	Defines the number of digits that will be transferred into the application on the PC, e.g. into an Excel field	Numeric (1* 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.	For all values 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.	Left of weight field Left of weight digits*
Decimal delimiter	Defines the character used to separate the whole and fractional part of a numeric value.	, .*
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.	Active Inactive*
Net indicator field length	Defines the field length of the Net indicator. This option only appears when the option Net indicator is set to Active .	Numeric (2* 1 ... 2)
Unit	Defines if a weighing unit is being shown in the weighing field.	Active* Inactive
Unit field length	Defines the field length of the weighing unit. This option only appears when the option Unit is set to Active .	Numeric (1* 1...6)
Field delimiter	Defines a character or sequence of characters to separate data fields.	No* TAB , ;
End of line character	Defines a character or sequence of characters signifying the end of a line.	CRLF* CR LF TAB No Enter

* Factory setting

7.5.1.3 Date / Time / Language / Format

The following parameters can be defined:

Parameter	Explanation	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 Deutsch Français 日本語 中文 Español Italiano Русский Português Polski Magyar Čeština
Time zone	To select a time zone.	see list on the screen
Date format	To select the date format.	D.MMM.YYYY* MMM D YYYY DD.MM.YYYY MM/DD/YYYY YYYY-MM-DD YYYY/MM/DD
Time format	To select the time format.	24:MM* 12:MM 24.MM 12.MM
Keyboard layout	Defines the language of the keyboard layout.	English German French Spanish Japanese Simplified Chinese Russian Czech Polish Hungarian

* Factory setting

7.5.1.4 Screen / StatusLight / Sound

The following parameters can be defined:

Parameter	Explanation	Values
Screen brightness	Defines the brightness of the display.	20 % 40 % 60 % 80 %* 100 %
Sound volume	Defines the volume of the terminal sound.	Inactive 20 % 40 % 60 %* 80 % 100 %
Sound on key press	Defines if there is a sound when a key is pressed.	Active* Inactive
Sound on info	Defines if there is a sound when an information appears on the screen.	Active* Inactive
Sound on warning	Defines is there is a sound when a warning appears on the screen.	Active* Inactive
Sound on error	Defines is there is a sound in case of an error.	Active* Inactive
StatusLight	Activates/deactivates the status light.	Active* Active (without green light) 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 % 40 % 60 %* 80 % 100 %

* Factory setting

7.5.1.5 General

The following parameters can be defined:

Parameter	Explanation	Values
Balance ID	Defines the ID of the balance.	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* 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 (15 minutes* 0...60 minutes)
Firmware update on system start-up	With this option activated the update of the firmware can be performed from a USB storage device.	Active* Inactive
Automatic export directory	Defines the target directory for the automatic export.	USB storage device*
User management	Activates/Deactivates the option User management .	Active Inactive*

* Factory setting

Integration Files

With this function the defined settings can be saved on an external storage device as xsd schema file.

Unblocking password

This option appears when no user password is being defined via **User management**. A password to unblock the balance can be defined.

7.5.2 Interfaces

In this section the settings for the interfaces can be defined.

Navigation: ▶ **Balance menu** >  **Settings** >  **Interfaces**

The section **Interfaces** is divided into the following sub-section(s):

-  **Ethernet**

7.5.2.1 Ethernet

In this section the settings for the option **Ethernet** can be defined.

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**

The following parameters can be defined:

Parameter	Explanation	Values
Host name	Shows the balance host name. The host name can be defined via Settings > General > Balance ID .	Numeric (22* 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* 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 which 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 which links the host's subnet to other networks.	000.000.000.000 ... 255.255.255.255

7.5.3 Devices / Printers

In this section external devices such as printers, barcode scanners, ErgoSens, foot switches, anti-static kits as well as PCs or MT-SICS hosts can be added and configured.

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

7.5.4 LabX / Services

In this section, the options for LabX and services can be defined.

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

The following parameters can be defined:

Parameter	Explanation	Values
LabX service	Network: A network connection to LabX will be established on startup. Inactive: No connection to LabX will be established. USB: A USB connection to LabX will be established on startup.	Network Inactive* USB
Keyboard layout	Defines the language of the keyboard layout.	English German French Spanish Japanese Simplified Chinese Russian Czech Polish Hungarian
Port	Defines the port for a network connection of the balance to LabX. Port 8014 is proposed by default. The port number must be entered when adding an instruments in LabX.	1024...65535
MT-SICS service	Network: A network connection to MT-SICS will be established on startup. Inactive: No connection to MT-SICS will be established. USB client: A USB connection to MT-SICS will be established on startup.	Network Inactive* USB client

Port	Defines the port for a network connection of the balance to MT-SICS. Port 8014 is proposed by default. The port number must be entered when adding an instruments in MT-SICS.	(8001* 1024... 65535
File server	Allows you to define a file server to import/export data.	Active Inactive*
File server configuration	Allows you to define a file server to import/export data.	Server name Share name Import path Export path Firmware update path

7.6 Maintenance

Navigation: ▶ **Balance menu** >  **Maintenance**

The section **Maintenance** is divided into the following sub-sections:

- **Import / Export** (see section [Import / Export ▶ Page 95])
- **Firmware update** (see section [Firmware update ▶ Page 96])
- **Reset** (see section [Reset ▶ Page 96])
- **Service** (see section [Service ▶ Page 97])

Note



The option **Maintenance** only appears with the appropriate user rights.

7.6.1 Import / Export

In the section **Import / Export** data such as balance settings or defined methods can be imported or exported to other balances. The data can be imported/exported via an external USB storage device or within a network.

Navigation: ▶ **Balance menu** >  **Maintenance** >  **Import / Export**

7.6.1.1 Exporting data and settings

- 1 Select  **Export data and settings**.
- 2 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.
- 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 process was successful, the screen shows  with the file name and its target folder.
- 8 Tap ✕ **Close** to finish the process.

7.6.1.2 Importing data and settings

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

Note

Make sure that the software version of the imported data and settings is not higher than the software version of the balance where the data and settings are being imported.

- 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.

 **Note**

When importing methods it can be selected if the imported methods will replace all existing methods or if the imported methods can be selected individually.

 **Note**

The imported data categories will replace the current data categories on the balance. Make sure that the existing data categories can be replaced.

- 9 Tap **✓ Import**.
- 10 Tap **→ Next**.
 - ⇒ The message **Import of data and settings has been executed**. appears. The import was successful. Tap **✗ Close** to return to the method work screen.

7.6.2 Firmware update

This section shows information about the current firmware version that is currently installed on the balance. The firmware can be updated or it can be rolled back to a previous version.

Navigation: ▶ **Balance menu** >  **Maintenance** >  **Firmware update**



NOTICE

Firmware update causes data loss.

After a firmware update all saved data and user settings will be deleted. Save all relevant data before the update.

7.6.2.1 Updating the firmware

In this section the balance firmware can be updated. Select **Update firmware** and tap **→ Next**. An update wizard will lead you stepwise through the whole updating process.

7.6.2.2 Restoring the firmware to the previous version

In this section the current firmware version can be rolled back to the previous software version. Select **Restore the firmware to the previous version**. and tap **→ Next**. This process is guided by a stepwise wizard.

7.6.3 Reset

In this section the balance firmware can be reset to the factory state.

Navigation: ▶ **Balance menu** >  **Maintenance** >  **Reset**



NOTICE

Reset causes data loss

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

 **Note**



The history data for **Changes, Tests** and **Adjustments** will not be affected by resetting the balance. If you want to delete these data, activate the option **Also delete change history, test and adjustment history**.

7.6.3.1 Resetting the balance

- 1 To delete the change history data and the data for test history and adjustment history, activate the option **Also delete change history, 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 firmware restarts in factory state.

7.6.4 Service

In this section the settings for the service menu can be defined.

Navigation: ▶ **Balance menu** >  **Maintenance** >  **Service**

7.6.4.1 View adjustment state

In this section a list of adjustment states appears.

7.6.4.2 Save support file

In this section support files can be saved on external USB storage devices.

7.6.4.3 Import log configuration

To import log configuration data from an external USB storage device.

8 Maintenance

8.1 Cleaning

We recommend periodically cleaning the draft shield, the weighing platform, and the terminal. For cleaning the weighing chamber use the brush supplied with it. The maintenance interval depends on your standard operating procedure (SOP). The balance is made of high-quality, resistant materials and can therefore be cleaned with a commercially available, mild cleaning agent.



WARNING

Danger of death or serious injury due to electric shock!

Contact with parts that contain a live current can lead to injury and death. If the device cannot be shut down in an emergency situation, people can be injured or the device can be damaged.

- 1 Disconnect the device from the power supply prior to cleaning and maintenance.
- 2 Only use METTLER TOLEDO power cables, if these need to be replaced.
- 3 Make sure that no liquid enters the device or AC/DC adapter.
- 4 Do not open the device or AC/DC adapter. These do not contain any user-serviceable parts.



NOTICE

Damage of the balance due to the use of inappropriate cleaning agents!

- On no account use cleaning agents which contain solvents or abrasive ingredients, as this can result in damage to the terminal overlay.

Note

Please contact your METTLER TOLEDO dealer for details of the available service options. Regular servicing by an authorized service engineer ensures constant accuracy for years to come and prolongs the life of your balance.

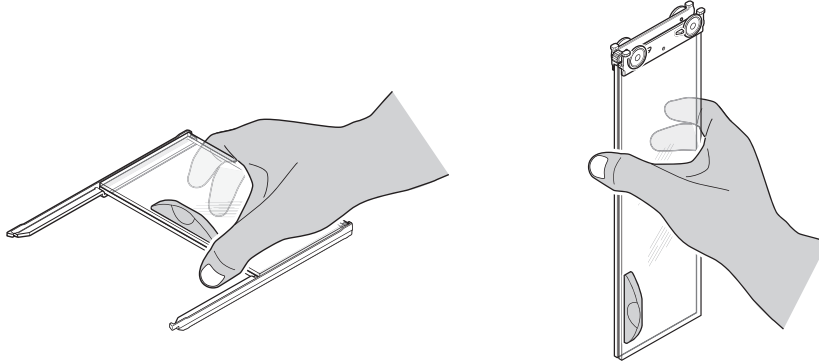
8.2 Cleaning the Pro Draft Shield



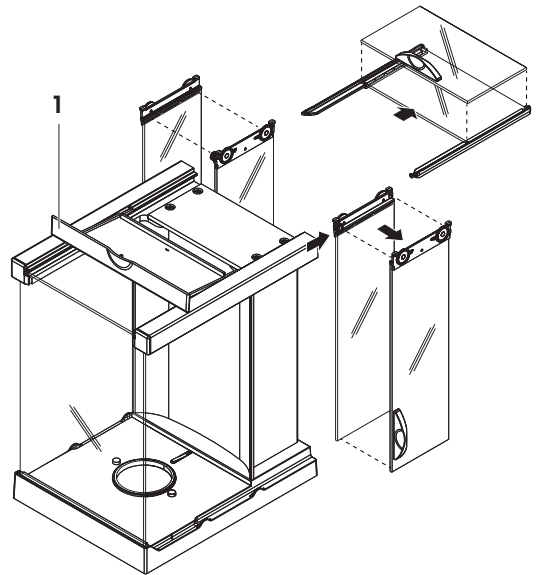
NOTICE

Damage to the Pro Draft Shield glass

The glasses of the side doors and of the top door must be removed and inserted together. Hold both glass doors together with one hand when inserting or removing.



- 1 Remove the weighing pan and/or SmartPan weighing pan.
- 2 Lift the Pro Draft Shield off the weighing platform and place it on a clean surface.
- 3 Remove the DripTray.
- 4 Turn the cover (1) to the front.
- 5 Pull the top glass back and out of the housing.
- 6 Pull the side glasses back out of the housing.
- 7 Clean all parts and reassemble the Pro Draft Shield.



8.3 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 (for private or professional use), the content of this regulation must also be related.






Thank you for your contribution to environmental protection.



9 Troubleshooting







9.1 System messages icons

Balance system messages can appear due to a user action, 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, such that the user can sometimes defer them but eventually has to handle them. These messages can be looked up in the Main Status Bar on the upper righthand side.



	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 ▶ Page 33]. 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 action or process.
	Warning	Warning messages appear due to user actions or system processes that could lead to a problem and 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.

9.2 Weight status icons

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

	Stability indicator	When the stability indicator appears, the balance is not stable. Make sure that the balance is placed in an adequate location. Information about the adequate location can be found in the section [Selecting the location ▶ Page 24].
Net	Net indicator	Appears when the tare key has been pressed and the tare weight has been subtracted.
	Minimum weight violation	The current weight value violates the defined minimum weight definition. Make sure that the weight is not below the minimum weight.
	Calculated value	The current weight value is calculated. The symbol only appears when a container has been used with the function Pretare .
	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 by a violation of the minimum weight, an overload or an underload.
	Weight ready	The current weight measurement is ready according to the GWP approved definition. It can be added to the protocol.

9.3 What to do if...?

Symptom	Countermeasure
The following symbol appears on the screen: 	Underload <ul style="list-style-type: none"> • Check if the weighing pan is positioned correctly.
The following symbol appears on the screen: 	Overload <ul style="list-style-type: none"> • Reduce the sample weight.
The screen remains dark after switching on the balance.	<ul style="list-style-type: none"> • Ensure that the terminal is correctly connected to the weighing platform. • Ensure that the balance is correctly connected to the power supply. • If the problem persists, contact a METTLER TOLEDO representative.
The balance cannot be levelled.	<ul style="list-style-type: none"> • Ensure that the terminal connection cable is not squeezed between the levelling foot and the bottom of the weighing platform. • If the problem persists, contact a METTLER TOLEDO representative.
The weighing pan does slightly move.	<ul style="list-style-type: none"> • Ensure that the weighing pan is correctly placed on the weighing platform. • When using a SmartPan weighing pan make sure that the SmartPan weighing pan is locked.
An external device doesn't work.	<ul style="list-style-type: none"> • Ensure that the device is correctly connected. • Ensure that the device is correctly configured in the system settings of the balance. • Ensure that the settings of the device are correctly configured. • If the problem persists, contact a METTLER TOLEDO representative.

10 Technical Data

FCC Rules

This device complies with Industry Canada licence-exempt RSS standard(s) and part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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

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.

10.1 General technical data

10.1.1 Balances with S weighing platform

Power supply

AC adapter:	Primary: 100 – 240 V AC, 50/60 Hz Secondary: 12 V DC $\pm 3\%$, min. 2.5 A, max. 6.0 A (with electronic overload protection)
Cable for AC adapter:	3-core, with country-specific plug
Balance power supply:	12 V DC $\pm 3\%$, 2.25 A, maximum ripple: 80 mVpp

Protection and standards

Overvoltage category:	II
Degree of pollution:	2
Protection:	Protected against dust and water
Standards for safety and EMC:	See Declaration of Conformity
Range of application:	For use in closed interior rooms only

Environmental conditions

Height above mean sea level:	Up to 4000 m
Ambient temperature:	5–40 °C
Relative air humidity:	Max. 80% up to 31 °C, linearly decreasing to 50% at 40 °C, noncondensing
Warm-up time:	At least 30 minutes after connecting the balance to the power supply; when switched on from standby-mode, the balance is ready for operation immediately

Environmental conditions Comparators

Height above mean sea level:	Up to 4000 m
Ambient temperature:	10 – 30 °C $\pm 0.5^\circ\text{C}$ / 12 h
Relative air humidity:	40% – 70% $\pm 5\%$ / 4 h
Maximum air speed:	0.15 m/sec
Warm-up time:	At least 60 minutes after connecting the comparator to the power supply. When switched on from standby-mode, the comparator is ready for operation immediately.

Materials

Weighing platform:	Die-cast aluminum, lacquered, plastic and chrome steel
Terminal:	Die-cast zinc, chromed and plastics
Weighing pan:	Chrome-nickel steel X2CrNiMo-17-12-2
SmartPan weighing pan with drip tray:	Die-cast zinc, chromed
LevelMatic weighing pan (Comparators only):	Chrome steel, plastic
Draft shield:	Aluminum, plastic, chrome steel and glass
Draft shield element:	Chrome steel X2CrNiMo-17-13-2

10.1.2 Balances with L weighing platform

Power supply

AC adapter:	Primary: 100 – 240 V AC, 50/60 Hz Secondary: 12 V DC $\pm 3\%$, min. 2.5 A, max. 6.0 A (with electronic overload protection)
Cable for AC adapter:	3-core, with country-specific plug
Balance power supply:	12 V DC $\pm 3\%$, 2.25 A, maximum ripple: 80 mVpp

Protection and standards

Overvoltage category:	II
Degree of pollution:	2
Protection:	Protected against dust and water
Standards for safety and EMC:	See Declaration of Conformity
Range of application:	For use in closed interior rooms only

Environmental conditions

Height above mean sea level:	Up to 4000 m
Ambient temperature:	5–40 °C
Relative air humidity:	Max. 80% up to 31 °C, linearly decreasing to 50% at 40 °C, noncondensing
Warm-up time:	At least 30 minutes after connecting the balance to the power supply; when switched on from standby-mode, the balance is ready for operation immediately

Environmental conditions Comparators

Height above mean sea level:	Up to 4000 m
Ambient temperature:	10 – 30 °C $\pm 0.5^\circ\text{C}$ / 12 h
Relative air humidity:	40% – 70% $\pm 5\%$ / 4 h
Maximum air speed:	0.15 m/sec
Warm-up time:	At least 60 minutes after connecting the comparator to the power supply. When switched on from standby-mode, the comparator is ready for operation immediately.

Materials

Weighing platform:	Sheet aluminum, die cast, laquered, plastic and chrome steel
Terminal:	Die-cast zinc, chromed and plastics
Weighing pan:	Chrome-nickel steel X5CrNi18-10
SmartPan weighing pan with drip tray:	Die-cast zinc, chromed
LevelMatic weighing pan (Comparators only):	Chrome-nickel steel and aluminium
Draft shield:	Plastic, chrome-nickel steel, aluminium and glass

10.2 Model-specific technical data

10.2.1 Balances with S weighing platform

10.2.1.1 Readability 0.1 mg, with Pro Draft Shield

	XPR204S	XPR404S
Limit Values		
Maximum capacity	210 g	410 g
Readability	0.1 mg	0.1 mg
Maximum capacity in fine range	-	-
Readability in fine range	-	-
Tare range (from...to)	0 ... 210 g	0 ... 410 g
Repeatability (sd)	0.2 mg (200 g)	0.1 mg (400 g)
Repeatability in fine range (sd)	-	-
Linearity deviation	0.2 mg (50 g)	0.2 mg (100 g)
Eccentricity deviation (test load) ²⁾	0.3 mg (100 g)	0.3 mg (200 g)
Sensitivity offset (at nominal load) ¹⁾	0.6 mg (200 g)	2 mg (400 g)
Sensitivity temperature drift ³⁾	0.0001 %/°C	0.00015 %/°C
Sensitivity stability ³⁾	0.0001 %/a	0.00025 %/a
Typical values		
Repeatability (sd)	0.12 mg	0.06 mg
Repeatability in fine range (sd)	-	-
Linearity deviation	0.06 mg	0.06 mg
Eccentricity deviation (test load) ²⁾	0.1 mg (100 g)	0.1 mg (200 g)
Sensitivity offset (at nominal load) ¹⁾	0.4 mg (200 g)	0.48 mg (400 g)
USP minimum sample weight (k=2, U=0.10%)	240 mg	120 mg
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-
Minimum sample weight (k=2, U=1%)	24 mg	12 mg
Minimum sample weight in fine range (k=2, U=1%)	-	-
Settling time	2 s	2 s
Settling time in fine range	-	-
Dimensions & other specifications		
Balance dimensions (W × D × H)	214 × 411 × 368 mm	214 × 411 × 368 mm
Weighing pan dimensions (W × D)	68 × 68 mm	68 × 68 mm
Usable height of draft shield	245 mm	245 mm
Weight of the balance	7.8 kg	7.8 kg
Weights for routine testing		
OIML CarePac	#11123001	#11123000
Weights	200 g F2, 10 g F1	200 g F2, 20 g F1
ASTM CarePac	#11123101	#11123100
Weights	200 g 1, 10 g 1	200 g 1, 20 g 1

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

	XPR504S	XPR504SDR
Limit Values		
Maximum capacity	510 g	510 g
Readability	0.1 mg	1 mg
Maximum capacity in fine range	-	101 g
Readability in fine range	-	0.1 mg
Tare range (from...to)	0 ... 510 g	0 ... 510 g
Repeatability (sd)	0.1 mg (500 g)	0.5 mg (200 g)
Repeatability in fine range (sd)	-	0.1 mg (100 g)
Linearity deviation	0.3 mg (100 g)	0.4 mg (100 g)
Eccentricity deviation (test load) ²⁾	0.4 mg (200 g)	1 mg (200 g)
Sensitivity offset (at nominal load) ¹⁾	2 mg (500 g)	2.5 mg (500 g)
Sensitivity temperature drift ³⁾	0.00015 %/°C	0.0002 %/°C
Sensitivity stability ³⁾	0.00025 %/a	0.0015 %/a
Typical values		
Repeatability (sd)	0.07 mg	0.4 mg
Repeatability in fine range (sd)	-	0.08 mg
Linearity deviation	0.2 mg	0.2 mg
Eccentricity deviation (test load) ²⁾	0.1 mg (200 g)	0.8 mg (200 g)
Sensitivity offset (at nominal load) ¹⁾	0.3 mg (500 g)	0.3 mg (500 g)
USP minimum sample weight (k=2, U=0.10%)	140 mg	820 mg
USP minimum sample weight in fine range (k=2, U=0.10%)	-	160 mg
Minimum sample weight (k=2, U=1%)	14 mg	82 mg
Minimum sample weight in fine range (k=2, U=1%)	-	16 mg
Settling time	2 s	1.5 s
Settling time in fine range	-	2 s
Dimensions & other specifications		
Balance dimensions (W × D × H)	214 × 411 × 368 mm	214 × 411 × 368 mm
Weighing pan dimensions (W × D)	68 × 68 mm	68 × 68 mm
Usable height of draft shield	245 mm	245 mm
Weight of the balance	7.8 kg	7.8 kg
Weights for routine testing		
OIML CarePac	#11123001	#11123000
Weights	200 g F2, 10 g F1	200 g F2, 20 g F1
ASTM CarePac	#11123101	#11123100
Weights	200 g 1, 10 g 1	200 g 1, 20 g 1

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.1.2 Readability 1 mg, with Pro Draft Shield and SmartPan weighing pan

	XPR303S	XPR603S	XPR603SDR
Limit Values			
Maximum capacity	310 g	610 g	610 g
Readability	1 mg	1 mg	10 mg
Maximum capacity in fine range	-	-	120 g
Readability in fine range	-	-	1 mg
Tare range (from...to)	0 ... 310 g	0 ... 610 g	0 ... 610 g
Repeatability (sd)	0.9 mg (100 g)	0.9 mg (200 g)	6 mg (200 g)
Repeatability in fine range (sd)	-	-	1 mg (100 g)
Linearity deviation	2 mg (50 g)	2 mg (200 g)	6 mg (200 g)
Eccentricity deviation (test load) ²⁾	3 mg (100 g)	3 mg (200 g)	5 mg (200 g)
Sensitivity offset (at nominal load) ¹⁾	6 mg (300 g)	4.5 mg (600 g)	6 mg (600 g)
Sensitivity temperature drift ³⁾	0.0005 %/°C	0.0002 %/°C	0.0002 %/°C
Sensitivity stability ³⁾	0.0025 %/a	0.001 %/a	0.001 %/a
Typical values			
Repeatability (sd)	0.5 mg	0.5 mg	4 mg
Repeatability in fine range (sd)	-	-	0.8 mg
Linearity deviation	0.6 mg	0.6 mg	1.5 mg
Eccentricity deviation (test load) ²⁾	1 mg (100 g)	1 mg (200 g)	1.5 mg (200 g)
Sensitivity offset (at nominal load) ¹⁾	1.2 mg (300 g)	1.2 mg (600 g)	6 mg (600 g)
USP minimum sample weight (k=2, U=0.10%)	1 g	1 g	8.2 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-	1.6 g
Minimum sample weight (k=2, U=1%)	100 mg	100 mg	820 mg
Minimum sample weight in fine range (k=2, U=1%)	-	-	160 mg
Settling time	1.5 s	1.5 s	1.5 s
Settling time in fine range	-	-	1.5 s
Dimensions & other specifications			
Balance dimensions (W × D × H)	214 × 411 × 368 mm	214 × 411 × 368 mm	214 × 411 × 368 mm
Weighing pan dimensions (W × D)	127 × 127 mm	127 × 127 mm	127 × 127 mm
Usable height of draft shield	245 mm	245 mm	245 mm
Weight of the balance	8.4 kg	8.4 kg	8.4 kg
Weights for routine testing			
OIML CarePac	#11123001	#11123007	#11123007
Weights	200 g F2, 10 g F1	500 g F2, 20 g F1	500 g F2, 20 g F1
ASTM CarePac	#11123101	#11123107	#11123107
Weights	200 g 1, 10 g 1	500 g 1, 20 g 1	500 g 1, 20 g 1

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

	XPR1203S	XPR3003S	XPR5003S
Limit Values			
Maximum capacity	1210 g	3.1 kg	5.1 kg
Readability	1 mg	1 mg	1 mg
Maximum capacity in fine range	-	-	-
Readability in fine range	-	-	-
Tare range (from...to)	0 ... 1210 g	0 ... 3.1 kg	0 ... 5.1 kg
Repeatability (sd)	0.8 mg (500 g)	1 mg (1000 g)	1.5 mg (2 kg)
Repeatability in fine range (sd)	-	-	-
Linearity deviation	2 mg (200 g)	6 mg (500 g)	6 mg (1 kg)
Eccentricity deviation (test load) ²⁾	3 mg (500 g)	10 mg (1 kg)	10 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	6 mg (1.2 kg)	9 mg (3 kg)	12.5 mg (5 kg)
Sensitivity temperature drift ³⁾	0.0002 %/°C	0.0003 %/°C	0.0003 %/°C
Sensitivity stability ³⁾	0.001 %/a	0.0015 %/a	0.0015 %/a
Typical values			
Repeatability (sd)	0.4 mg	0.6 mg	1 mg
Repeatability in fine range (sd)	-	-	-
Linearity deviation	0.6 mg	2 mg	2 mg
Eccentricity deviation (test load) ²⁾	1 mg (500 g)	3 mg (1 kg)	3 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	1.5 mg (1.2 kg)	1.8 mg (3 kg)	3 mg (5 kg)
USP minimum sample weight (k=2, U=0.10%)	820 mg	1.2 g	2 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-	-
Minimum sample weight (k=2, U=1%)	82 mg	120 mg	200 mg
Minimum sample weight in fine range (k=2, U=1%)	-	-	-
Settling time	1.5 s	2 s	2 s
Settling time in fine range	-	-	-
Dimensions & other specifications			
Balance dimensions (W × D × H)	214 × 411 × 368 mm	214 × 411 × 102 mm	214 × 411 × 368 mm
Weighing pan dimensions (W × D)	127 × 127 mm	127 × 127 mm	127 × 127 mm
Usable height of draft shield	245 mm	245 mm	245 mm
Weight of the balance	8.4 kg	8.4 kg	8.5 kg
Weights for routine testing			
OIML CarePac	#11123008	#11123009	#11123011
Weights	1000 g F2, 50 g F2	2 kg F2, 100 g F2	5 kg F2, 200 g F2
ASTM CarePac	#11123108	#11123109	#11123111
Weights	1000 g 1, 50 g 1	2 kg 1, 100 g 1	5 kg 4, 200 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.1.3 Readability 1 mg, with SmartPan weighing pan

	XPR303SN	XPR603SN	XPR603SNDR
Limit Values			
Maximum capacity	310 g	610 g	610 g
Readability	1 mg	1 mg	10 mg
Maximum capacity in fine range	-	-	120 g
Readability in fine range	-	-	1 mg
Tare range (from...to)	0 ... 310 g	0 ... 610 g	0 ... 610 g
Repeatability (sd)	0.9 mg (100 g)	0.9 mg (200 g)	6 mg (200 g)
Repeatability in fine range (sd)	-	-	1 mg (100 g)
Linearity deviation	2 mg (50 g)	2 mg (200 g)	6 mg (200 g)
Eccentricity deviation (test load) ²⁾	3 mg (100 g)	3 mg (200 g)	5 mg (200 g)
Sensitivity offset (at nominal load) ¹⁾	6 mg (300 g)	4.5 mg (600 g)	6 mg (600 g)
Sensitivity temperature drift ³⁾	0.0005 %/°C	0.0002 %/°C	0.0002 %/°C
Sensitivity stability ³⁾	0.0025 %/a	0.001 %/a	0.001 %/a
Typical values			
Repeatability (sd)	0.5 mg	0.5 mg	4 mg
Repeatability in fine range (sd)	-	-	0.8 mg
Linearity deviation	0.6 mg	0.6 mg	1.5 mg
Eccentricity deviation (test load) ²⁾	1 mg (100 g)	1 mg (200 g)	1.5 mg (200 g)
Sensitivity offset (at nominal load) ¹⁾	1.2 mg (300 g)	1.2 mg (600 g)	6 mg (600 g)
USP minimum sample weight (k=2, U=0.10%)	1 g	1 g	8.2 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-	1.6 g
Minimum sample weight (k=2, U=1%)	100 mg	100 mg	820 mg
Minimum sample weight in fine range (k=2, U=1%)	-	-	160 mg
Settling time	1.5 s	1.5 s	1.5 s
Settling time in fine range	-	-	1.5 s
Dimensions & other specifications			
Balance dimensions (W × D × H)	194 × 411 × 102 mm	194 × 411 × 102 mm	194 × 411 × 102 mm
Weighing pan dimensions (W × D)	127 × 127 mm	127 × 127 mm	127 × 127 mm
Weight of the balance	5.7 kg	5.7 kg	5.7 kg
Weights for routine testing			
OIML CarePac	#11123001	#11123007	#11123007
Weights	200 g F2, 10 g F1	500 g F2, 20 g F1	500 g F2, 20 g F1
ASTM CarePac	#11123101	#11123107	#11123107
Weights	200 g 1, 10 g 1	500 g 1, 20 g 1	500 g 1, 20 g 1

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.1.4 Readability 5 mg, with SmartPan weighing pan

	XPR3003SD5	XPR6003SD5
Limit Values		
Maximum capacity	3.1 kg	6.1 kg
Readability	5 mg	5 mg
Maximum capacity in fine range	-	-
Readability in fine range	-	-
Tare range (from...to)	0 ... 3.1 kg	0 ... 6.1 kg
Repeatability (sd)	6 mg (1 kg)	6 mg (2 kg)
Repeatability in fine range (sd)	-	-
Linearity deviation	6 mg (500 g)	7 mg (1 kg)
Eccentricity deviation (test load) ²⁾	20 mg (1 kg)	30 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	18 mg (3 kg)	21 mg (6 kg)
Sensitivity temperature drift ³⁾	0.0003 %/°C	0.0003 %/°C
Sensitivity stability ³⁾	0.0015 %/a	0.0015 %/a
Typical values		
Repeatability (sd)	3 mg	3 mg
Repeatability in fine range (sd)	-	-
Linearity deviation	2 mg	2 mg
Eccentricity deviation (test load) ²⁾	5 mg (1 kg)	10 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	4 mg (3 kg)	5 mg (6 kg)
USP minimum sample weight (k=2, U=0.10%)	6 g	6 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-
Minimum sample weight (k=2, U=1%)	600 mg	600 mg
Minimum sample weight in fine range (k=2, U=1%)	-	-
Settling time	2 s	2 s
Settling time in fine range	-	-
Dimensions & other specifications		
Balance dimensions (W × D × H)	194 × 411 × 102 mm	194 × 411 × 102 mm
Weighing pan dimensions (W × D)	172 × 205 mm	172 × 205 mm
Weight of the balance	7.6 kg	7.6 kg
Weights for routine testing		
OIML CarePac	#11123009	#11123011
Weights	2 kg F2, 100 g F2	5 kg F2, 200 g F2
ASTM CarePac	#11123109	#11123111
Weights	2 kg 1, 100 g 1	5 kg 4, 200 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.1.5 Readability 10 mg, with SmartPan weighing pan

	XPR1202S	XPR2002S	XPR4002S
Limit Values			
Maximum capacity	1210 g	2.1 kg	4.1 kg
Readability	10 mg	10 mg	10 mg
Maximum capacity in fine range	-	-	-
Readability in fine range	-	-	-
Tare range (from...to)	0 ... 1210 g	0 ... 2.1 kg	0 ... 4.1 kg
Repeatability (sd)	8 mg (500 g)	8 mg (1 kg)	8 mg (2 kg)
Repeatability in fine range (sd)	-	-	-
Linearity deviation	20 mg (200 g)	20 mg (500 g)	20 mg (1 kg)
Eccentricity deviation (test load) ²⁾	20 mg (500 g)	30 mg (1 kg)	30 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	60 mg (1.2 kg)	60 mg (2 kg)	60 mg (4 kg)
Sensitivity temperature drift ³⁾	0.0003 %/°C	0.0003 %/°C	0.0003 %/°C
Sensitivity stability ³⁾	0.0025 %/a	0.0025 %/a	0.0015 %/a
Typical values			
Repeatability (sd)	4 mg	4 mg	4 mg
Repeatability in fine range (sd)	-	-	-
Linearity deviation	6 mg	6 mg	6 mg
Eccentricity deviation (test load) ²⁾	6 mg (500 g)	10 mg (1 kg)	10 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	15 mg (1.2 kg)	25 mg (2 kg)	25 mg (4 kg)
USP minimum sample weight (k=2, U=0.10%)	8.2 g	8.2 g	8.2 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-	-
Minimum sample weight (k=2, U=1%)	820 mg	820 mg	820 mg
Minimum sample weight in fine range (k=2, U=1%)	-	-	-
Settling time	1.2 s	1.2 s	1.2 s
Settling time in fine range	-	-	-
Dimensions & other specifications			
Balance dimensions (W × D × H)	194 × 411 × 102 mm	194 × 411 × 102 mm	194 × 411 × 102 mm
Weighing pan dimensions (W × D)	172 × 205 mm	172 × 205 mm	172 × 205 mm
Weight of the balance	8.2 kg	8.2 kg	8.2 kg
Weights for routine testing			
OIML CarePac	#11123008	#11123009	#11123010
Weights	1000 g F2, 50 g F2	2 kg F2, 100 g F2	2 kg F2, 200 g F2
ASTM CarePac	#11123108	#11123109	#11123110
Weights	1000 g 1, 50 g 1	2 kg 1, 100 g 1	2 kg 4, 200 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

	XPR6002S	XPR6002SDR
Limit Values		
Maximum capacity	6.1 kg	6.1 kg
Readability	10 mg	100 mg
Maximum capacity in fine range	-	1200 g
Readability in fine range	-	10 mg
Tare range (from...to)	0 ... 6.1 kg	0 ... 6.1 kg
Repeatability (sd)	8 mg (2 kg)	60 mg (2 kg)
Repeatability in fine range (sd)	-	8 mg (500 g)
Linearity deviation	20 mg (1 kg)	60 mg (1 kg)
Eccentricity deviation (test load) ²⁾	30 mg (2 kg)	100 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	60 mg (6 kg)	150 mg (6 kg)
Sensitivity temperature drift ³⁾	0.0003 %/°C	0.0003 %/°C
Sensitivity stability ³⁾	0.0015 %/a	0.0015 %/a
Typical values		
Repeatability (sd)	4 mg	40 mg
Repeatability in fine range (sd)	-	5 mg
Linearity deviation	6 mg	20 mg
Eccentricity deviation (test load) ²⁾	10 mg (2 kg)	30 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	12 mg (6 kg)	30 mg (6 kg)
USP minimum sample weight (k=2, U=0.10%)	8.2 g	82 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	10 g
Minimum sample weight (k=2, U=1%)	0.82 g	8.2 g
Minimum sample weight in fine range (k=2, U=1%)	-	1 g
Settling time	1.2 s	1.2 s
Settling time in fine range	-	1.2 s
Dimensions & other specifications		
Balance dimensions (W × D × H)	194 × 411 × 102 mm	194 × 411 × 102 mm
Weighing pan dimensions (W × D)	172 × 205 mm	172 × 205 mm
Weight of the balance	8.2 kg	8.2 kg
Weights for routine testing		
OIML CarePac	#11123011	#11123011
Weights	5 kg F2, 200 g F2	5 kg F2, 200 g F2
ASTM CarePac	#11123111	#11123111
Weights	5 kg 4, 200 g 4	5 kg 4, 200 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

	XPR8002S	XPR10002S
Limit Values		
Maximum capacity	8.1 kg	10.1 kg
Readability	10 mg	10 mg
Maximum capacity in fine range	-	-
Readability in fine range	-	-
Tare range (from...to)	0 ... 8.1 kg	0 ... 10.1 kg
Repeatability (sd)	8 mg (5 kg)	8 mg (5 kg)
Repeatability in fine range (sd)	-	-
Linearity deviation	20 mg (2 kg)	20 mg (2 kg)
Eccentricity deviation (test load) ²⁾	40 mg (5 kg)	40 mg (5 kg)
Sensitivity offset (at nominal load) ¹⁾	60 mg (8 kg)	50 mg (10 kg)
Sensitivity temperature drift ³⁾	0.00025 %/°C	0.00025 %/°C
Sensitivity stability ³⁾	0.0015 %/a	0.0015 %/a
Typical values		
Repeatability (sd)	4 mg	4 mg
Repeatability in fine range (sd)	-	-
Linearity deviation	6 mg	6 mg
Eccentricity deviation (test load) ²⁾	12 mg (5 kg)	12 mg (5 kg)
Sensitivity offset (at nominal load) ¹⁾	12 mg (8 kg)	12 mg (10 kg)
USP minimum sample weight (k=2, U=0.10%)	8.2 g	8.2 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-
Minimum sample weight (k=2, U=1%)	820 mg	820 mg
Minimum sample weight in fine range (k=2, U=1%)	-	-
Settling time	1.5 s	1.5 s
Settling time in fine range	-	-
Dimensions & other specifications		
Balance dimensions (W × D × H)	194 × 411 × 102 mm	194 × 411 × 102 mm
Weighing pan dimensions (W × D)	172 × 205 mm	172 × 205 mm
Weight of the balance	7.7 kg	7.7 kg
Weights for routine testing		
OIML CarePac	#11123011	-
Weights	5 kg F2, 200 g F2	10 kg F2, 500 g F2
ASTM CarePac	#11123111	-
Weights	5 kg 4, 200 g 4	10 kg 4, 500 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.1.6 Readability 0.1 g

	XPR4001S	XPR6001S
Limit Values		
Maximum capacity	4.1 kg	6.1 kg
Readability	100 mg	100 mg
Maximum capacity in fine range	-	-
Readability in fine range	-	-
Tare range (from...to)	0 ... 4.1 kg	0 ... 6.1 kg
Repeatability (sd)	80 mg (2 kg)	80 mg (2 kg)
Repeatability in fine range (sd)	-	-
Linearity deviation	60 mg (2 kg)	60 mg (2 kg)
Eccentricity deviation (test load) ²⁾	200 mg (2 kg)	200 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	240 mg (4 kg)	240 mg (6 kg)
Sensitivity temperature drift ³⁾	0.0015 %/°C	0.0015 %/°C
Sensitivity stability ³⁾	0.005 %/a	0.005 %/a
Typical values		
Repeatability (sd)	40 mg	40 mg
Repeatability in fine range (sd)	-	-
Linearity deviation	20 mg	20 mg
Eccentricity deviation (test load) ²⁾	60 mg (2 kg)	60 mg (2 kg)
Sensitivity offset (at nominal load) ¹⁾	50 mg (4 kg)	50 mg (6 kg)
USP minimum sample weight (k=2, U=0.10%)	82 g	82 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-
Minimum sample weight (k=2, U=1%)	8.2 g	8.2 g
Minimum sample weight in fine range (k=2, U=1%)	-	-
Settling time	0.8 s	0.8 s
Settling time in fine range	-	-
Dimensions & other specifications		
Balance dimensions (W × D × H)	194 × 411 × 99 mm	194 × 411 × 99 mm
Weighing pan dimensions (W × D)	190 × 223 mm	190 × 223 mm
Weight of the balance	6.6 kg	6.6 kg
Weights for routine testing		
OIML CarePac	#11123010	#11123011
Weights	2 kg F2, 200 g F2	5 kg F2, 200 g F2
ASTM CarePac	#11123110	#11123111
Weights	2 kg 4, 200 g 4	5 kg 4, 200 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

	XPR8001S	XPR10001S
Limit Values		
Maximum capacity	8.1 kg	10.1 kg
Readability	100 mg	100 mg
Maximum capacity in fine range	-	-
Readability in fine range	-	-
Tare range (from...to)	0 ... 8.1 kg	0 ... 10.1 kg
Repeatability (sd)	80 mg (5 kg)	80 mg (5 kg)
Repeatability in fine range (sd)	-	-
Linearity deviation	100 mg (5 kg)	100 mg (2 kg)
Eccentricity deviation (test load) ²⁾	200 mg (5 kg)	200 mg (5 kg)
Sensitivity offset (at nominal load) ¹⁾	600 mg (8 kg)	500 mg (10 kg)
Sensitivity temperature drift ³⁾	0.0015 %/°C	0.0015 %/°C
Sensitivity stability ³⁾	0.005 %/a	0.005 %/a
Typical values		
Repeatability (sd)	40 mg	40 mg
Repeatability in fine range (sd)	-	-
Linearity deviation	30 mg	30 mg
Eccentricity deviation (test load) ²⁾	60 mg (5 kg)	60 mg (5 kg)
Sensitivity offset (at nominal load) ¹⁾	120 mg (8 kg)	120 mg (10 kg)
USP minimum sample weight (k=2, U=0.10%)	82 g	82 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-
Minimum sample weight (k=2, U=1%)	8.2 g	8.2 g
Minimum sample weight in fine range (k=2, U=1%)	-	-
Settling time	1 s	1 s
Settling time in fine range	-	-
Dimensions & other specifications		
Balance dimensions (W × D × H)	194 × 411 × 99 mm	194 × 411 × 99 mm
Weighing pan dimensions (W × D)	190 × 223 mm	190 × 223 mm
Weight of the balance	6.6 kg	6.6 kg
Weights for routine testing		
OIML CarePac	#11123011	-
Weights	5 kg F2, 200 g F2	10 kg F2, 500 g F2
ASTM CarePac	#11123111	-
Weights	5 kg 4, 200 g 4	10 kg 4, 500 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.2 Comparators with S weighing platform

10.2.2.1 Redability 0.1 mg, with Pro Draft Shield

	XPR2004SC	XPR5004SC
Limit Values		
Maximum capacity	2.3 kg	5.1 kg
Readability	0.1 mg	0.1 mg
Tare range (from...to)	0 ... 2.3 kg	0 ... 5.1 kg
Repeatability	0.6 mg (2 kg)	1.5 mg (5 kg)
Repeatability 5x ABA	0.25 mg (2 kg)	0.5 mg (5 kg)
Repeatability 5x ABA at low load	0.1 mg (100 g)	0.3 mg (200 g)
Linearity deviation	1 mg (500 g)	3 mg (1 kg)
Eccentricity deviation (test load) ²⁾	0 mg (1 kg)	0 g (2 kg)
Sensitivity offset (at nominal load) ¹⁾	10 mg (2 kg)	12.5 mg (5 kg)
Sensitivity temperature drift ³⁾	0.0003 %/°C	0.0003 %/°C
Sensitivity stability ³⁾	0.0025 %/a	0.0015 %/a
Typical values		
Repeatability	0.3 mg	1 mg
Repeatability 5 x ABA typical	0.15 mg	0.4 mg
Linearity deviation	0.5 mg	1.8 mg
Eccentricity deviation (test load) ²⁾	0 mg (1 kg)	0 g (2 kg)
Sensitivity offset (test weight)	6.8 mg (2 kg)	3 mg (5 kg)
USP minimum sample weight (5% load, k=2, U=0.1%)	600 mg	2 g
Minimum sample weight (5% load, k=2, U=1%)	60 mg	0.2 g
Dimensions & other specifications		
Balance dimensions (W × D × H)	268 × 214 × 368 mm	268 × 214 × 368 mm
Weighing pan dimensions (W × D)	-	-
Weighing pan dimensions (diameter)	130 mm	130 mm
Usable height of draft shield	235 mm	235 mm
Weight of the balance	8.6 kg	8.7 kg
Weights for routine testing		
OIML CarePac	#11123009	#11123011
Weights	2 kg F2, 100 g F2	5 kg F2, 200 g F2
ASTM CarePac	#11123109	#11123111
Weights	2 kg 1, 100 g 1	5 kg 4, 200 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.2.2 Readability 1 mg

	XPR2003SC	XPR5003SC	XPR10003SC
Limit Values			
Maximum capacity	2.3 kg	5.1 kg	10.1 kg
Readability	1 mg	1 mg	1 mg
Tare range (from...to)	0 ... 2.3 kg	0 ... 5.1 kg	0 ... 10.1 kg
Repeatability	1 mg (2 kg)	2 mg (5 kg)	3.5 mg (10 kg)
Repeatability 5x ABA	0.8 mg (2 kg)	0.8 mg (5 kg)	1.5 mg (10 kg)
Repeatability 5x ABA at low load	0.6 mg (100 g)	0.7 mg (200 g)	1.2 mg (500 g)
Linearity deviation	2 mg (500 g)	3 mg (1 kg)	7 mg (2 kg)
Eccentricity deviation (test load) ²⁾	4 mg (1 kg)	0 mg (2 kg)	0 mg (5 kg)
Sensitivity offset (at nominal load) ¹⁾	10 mg (2 kg)	12.5 mg (5 kg)	50 mg (10 kg)
Sensitivity temperature drift ³⁾	0.0003 %/°C	0.0003 %/°C	0.00025 %/°C
Sensitivity stability ³⁾	0.0025 %/a	0.0015 %/a	0.0015 %/a
Typical values			
Repeatability	0.6 mg	1 mg	2 mg
Repeatability 5 x ABA typical	0.5 mg	0.5 mg	0.8 mg
Linearity deviation	0.7 mg	1.8 mg	3.2 mg
Eccentricity deviation (test load) ²⁾	2.6 mg (1 kg)	0 mg (2 kg)	0 mg (5 kg)
Sensitivity offset (test weight)	6.8 mg (2 kg)	3 mg (5 kg)	34 mg (10 kg)
USP minimum sample weight (5% load, k=2, U=0.1%)	1.2 g	2 g	4 g
Minimum sample weight (5% load, k=2, U=1%)	0.12 g	0.2 g	0.4 g
Dimensions & other specifications			
Balance dimensions (W × D × H)	268 × 214 × 368 mm	268 × 214 × 368 mm	268 × 214 × 115 mm
Weighing pan dimensions (W × D)	127 × 127 mm	-	-
Weighing pan dimensions (diameter)	-	130 mm	130 mm
Usable height of draft shield	245 mm	235 mm	-
Weight of the balance	8.7 kg	8.7 kg	5.7 kg
Weights for routine testing			
OIML CarePac	#11123001	#11123007	#11123007
Weights	200 g F2, 10 g F1	500 g F2, 20 g F1	500 g F2, 20 g F1
ASTM CarePac	#11123101	#11123107	#11123107
Weights	200 g 1, 10 g 1	500 g 1, 20 g 1	500 g 1, 20 g 1

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.3 Balances with L weighing platform

10.2.3.1 Readability 10 mg, with SmartPan weighing pan

	XPR15002L	XPR20002LDR
Limit Values		
Maximum capacity	15.1 kg	20.1 kg
Readability	10 mg	100 mg
Maximum capacity in fine range	-	4.2 kg
Readability in fine range	-	10 mg
Tare range (from...to)	0 ... 15.1 kg	0 ... 20.1 kg
Repeatability (sd)	15 mg (5 kg)	80 mg (10 kg)
Repeatability in fine range (sd)	-	30 mg (2 kg)
Linearity deviation	20 mg (5 kg)	60 mg (5 kg)
Eccentricity deviation (test load) ²⁾	80 mg (5 kg)	120 mg (10 kg)
Sensitivity offset (at nominal load) ¹⁾	60 mg (15 kg)	100 mg (20 kg)
Sensitivity temperature drift ³⁾	0.0015 %/°C	0.0015 %/°C
Sensitivity stability ³⁾	0.005 %/a	0.005 %/a
Typical values		
Repeatability (sd)	10 mg	60 mg
Repeatability in fine range (sd)	-	18 mg
Linearity deviation	6 mg	20 mg
Eccentricity deviation (test load) ²⁾	25 mg (5 kg)	40 mg (10 kg)
Sensitivity offset (at nominal load) ¹⁾	12 mg (15 kg)	25 mg (20 kg)
USP minimum sample weight (k=2, U=0.10%)	20 g	120 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	36 g
Minimum sample weight (k=2, U=1%)	2 g	12 g
Minimum sample weight in fine range (k=2, U=1%)	-	3.6 g
Settling time	1.5 s	1.5 s
Settling time in fine range	-	1.5 s
Dimensions & other specifications		
Balance dimensions (W × D × H)	360 × 434 × 147 mm	360 × 434 × 147 mm
Weighing pan dimensions (W × D)	172 × 205 mm	172 × 205 mm
Weight of the balance	12.7 kg	12.7 kg
Weights for routine testing		
OIML CarePac	-	-
Weights	10 kg F2, 500 g F2	20 kg F2, 1000 g F2
ASTM CarePac	-	-
Weights	10 kg 4, 500 g 4	20 kg 4, 1000 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.3.2 Readability 0.1 g

	XPR10001L	XPR16001L
Limit Values		
Maximum capacity	10.1 kg	16.1 kg
Readability	100 mg	100 mg
Maximum capacity in fine range	-	-
Readability in fine range	-	-
Tare range (from...to)	0 ... 10.1 kg	0 - 16.1 kg
Repeatability (sd)	80 mg (5 kg)	80 mg (5 kg)
Repeatability in fine range (sd)	-	-
Linearity deviation	200 mg (2 kg)	200 mg (4 kg)
Eccentricity deviation (test load) ²⁾	300 mg (5 kg)	300 mg (5 kg)
Sensitivity offset (at nominal load) ¹⁾	500 mg (10 kg)	800 mg (16 kg)
Sensitivity temperature drift ³⁾	0.0015 %/°C	0.0015 %/°C
Sensitivity stability ³⁾	0.005 %/a	0.005 %/a
Typical values		
Repeatability (sd)	40 mg	40 mg
Repeatability in fine range (sd)	-	-
Linearity deviation	60 mg	60 mg
Eccentricity deviation (test load) ²⁾	100 mg (5 kg)	100 mg (5 kg)
Sensitivity offset (at nominal load) ¹⁾	120 mg (10 kg)	200 mg (16 kg)
USP minimum sample weight (k=2, U=0.10%)	82 g	82 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-
Minimum sample weight (k=2, U=1%)	8.2 g	8.2 g
Minimum sample weight in fine range (k=2, U=1%)	-	-
Settling time	1.5 s	1.5 s
Settling time in fine range	-	-
Dimensions & other specifications		
Balance dimensions (W × D × H)	360 × 434 × 122 mm	360 × 434 × 122 mm
Weighing pan dimensions (W × D)	360 × 280 mm	360 × 280 mm
Weight of the balance	10.3 kg	10.3 kg
Weights for routine testing		
OIML CarePac	-	-
Weights	10 kg F2, 500 g F2	10 kg F2, 500 g F2
ASTM CarePac	-	-
Weights	10 kg 4, 500 g 4	10 kg 4, 500 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

	XPR32001L	XPR64001L
Limit Values		
Maximum capacity	32.1 kg	64.1 kg
Readability	0.1 g	0.1 g
Maximum capacity in fine range	-	-
Readability in fine range	-	-
Tare range (from...to)	0 ... 32.1 kg	0 ... 64.1 kg
Repeatability (sd)	80 mg (10 kg)	100 mg (20 kg)
Repeatability in fine range (sd)	-	-
Linearity deviation	300 mg (5 kg)	500 mg (10 kg)
Eccentricity deviation (test load) ²⁾	300 mg (10 kg)	500 mg (20 kg)
Sensitivity offset (at nominal load) ¹⁾	960 mg (32 kg)	1.28 g (64 kg)
Sensitivity temperature drift ³⁾	0.001 %/°C	0.001 %/°C
Sensitivity stability ³⁾	0.003 %/a	0.005 %/a
Typical values		
Repeatability (sd)	40 mg	40 mg
Repeatability in fine range (sd)	-	-
Linearity deviation	100 mg	150 mg
Eccentricity deviation (test load) ²⁾	100 mg (10 kg)	150 mg (20 kg)
Sensitivity offset (at nominal load) ¹⁾	250 mg (32 kg)	300 mg (64 kg)
USP minimum sample weight (k=2, U=0.10%)	82 g	82 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-
Minimum sample weight (k=2, U=1%)	8,2 g	8,2 g
Minimum sample weight in fine range (k=2, U=1%)	-	-
Settling time	1.5 s	1.8 s
Settling time in fine range	-	-
Dimensions & other specifications		
Balance dimensions (W × D × H)	360 × 434 × 122 mm	362 × 434 × 123 mm
Weighing pan dimensions (W × D)	360 × 280 mm	362 × 282 mm
Weight of the balance	10.3 kg	12 kg
Weights for routine testing		
OIML CarePac	-	-
Weights	20 kg F2, 1000 g F2	50 kg F2, 2 kg F2
ASTM CarePac	-	-
Weights	10 kg 4, 500 g 4	50 kg 4, 2 kg 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.3.3 Readability 1 g

	XPR32000L	XPR64000L
Limit Values		
Maximum capacity	32.1 kg	64.1 kg
Readability	1 g	1 g
Maximum capacity in fine range	-	-
Readability in fine range	-	-
Tare range (from...to)	0 ... 32.1 kg	0 ... 64.1 kg
Repeatability (sd)	600 mg (10 kg)	600 mg (20 kg)
Repeatability in fine range (sd)	-	-
Linearity deviation	600 mg (5 kg)	600 mg (10 kg)
Eccentricity deviation (test load) ²⁾	1 g (10 kg)	1 g (20 kg)
Sensitivity offset (at nominal load) ¹⁾	1.6 g (32 kg)	1.92 g (64 kg)
Sensitivity temperature drift ³⁾	0.0015 %/°C	0.0015 %/°C
Sensitivity stability ³⁾	0.005 %/a	0.003 %/a
Typical values		
Repeatability (sd)	400 mg	400 mg
Repeatability in fine range (sd)	-	-
Linearity deviation	200 mg	200 mg
Eccentricity deviation (test load) ²⁾	300 mg (10 kg)	300 mg (20 kg)
Sensitivity offset (at nominal load) ¹⁾	320 mg (32 kg)	320 mg (64 kg)
USP minimum sample weight (k=2, U=0.10%)	820 g	820 g
USP minimum sample weight in fine range (k=2, U=0.10%)	-	-
Minimum sample weight (k=2, U=1%)	82 g	82 g
Minimum sample weight in fine range (k=2, U=1%)	-	-
Settling time	1.2 s	1.5 s
Settling time in fine range	-	-
Dimensions & other specifications		
Balance dimensions (W × D × H)	360 × 434 × 122 mm	362 × 434 × 123 mm
Weighing pan dimensions (W × D)	360 × 280 mm	362 × 282 mm
Weight of the balance	10.3 kg	12 kg
Weights for routine testing		
OIML CarePac	-	-
Weights	20 kg F2, 1000 g F2	50 kg F2, 2 kg F2
ASTM CarePac	-	-
Weights	20 kg 4, 1000 g 4	50 kg 4, 2 kg 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.4 Comparators with L weighing platform

10.2.4.1 Redability 1 mg

XPR26003LC	
Limit Values	
Maximum capacity	26.1 kg
Readability	1 mg
Tare range (from...to)	0 ... 26.1 kg
Repeatability	6 mg (20 kg)
Repeatability 5x ABA	2.5 mg (20 kg)
Repeatability 5x ABA at low load	2 mg (1 kg)
Linearity deviation	20 mg (5 kg)
Eccentricity deviation (test load) ²⁾	0 mg (10 kg)
Sensitivity offset (at nominal load) ¹⁾	200 mg (20 kg)
Sensitivity temperature drift ³⁾	0.0003 %/°C
Sensitivity stability ³⁾	0.0015 %/a
Typical values	
Repeatability	4 mg
Repeatability 5 x ABA typical	2 mg
Linearity deviation	11.4 mg
Eccentricity deviation (test load) ²⁾	0 mg (10 kg)
Sensitivity offset (test weight)	140 mg (20 kg)
USP minimum sample weight (5% load, k=2, U=0.1%)	8 g
Minimum sample weight (5% load, k=2, U=1%)	0.8 g
Dimensions & other specifications	
Balance dimensions (W × D × H)	280 × 360 × 185 mm
Weighing pan dimensions (W × D)	-
Weighing pan dimensions (diameter)	220 mm
Usable height of draft shield	-
Weight of the balance	13.7 kg
Weights for routine testing	
OIML CarePac	#11123001
Weights	200 g F2, 10 g F1
ASTM CarePac	#11123101
Weights	200 g 1, 10 g 1

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.4.2 Readability 5 mg

	XPR32003LD5C	XPR64003LD5C
Limit Values		
Maximum capacity	32.1 kg	64.1 kg
Readability	5 mg	5 mg
Tare range (from...to)	0 ... 32.1 kg	0 ... 64.1 kg
Repeatability	15 mg (20 kg)	15 mg (50 kg)
Repeatability 5x ABA	8 mg (20 kg)	8 mg (50 kg)
Repeatability 5x ABA at low load	5 mg (1 kg)	5 mg (2 kg)
Linearity deviation	20 mg (5 kg)	50 mg (10 kg)
Eccentricity deviation (test load) ²⁾	0.25 g (10 kg)	0 mg (20 kg)
Sensitivity offset (at nominal load) ¹⁾	0.32 g (20 kg)	1.6 g (50 kg)
Sensitivity temperature drift ³⁾	0.0003 %/°C	0.0005 %/°C
Sensitivity stability ³⁾	0.002 %/a	0.003 %/a
Typical values		
Repeatability	6.5 mg	10 mg
Repeatability 5 x ABA typical	5 mg	7 mg
Linearity deviation	18 mg	28 mg
Eccentricity deviation (test load) ²⁾	160 mg (10 kg)	0 mg (20 kg)
Sensitivity offset (test weight)	140 mg (20 kg)	650 mg (50 kg)
USP minimum sample weight (5% load, k=2, U=0.1%)	13 g	20 g
Minimum sample weight (5% load, k=2, U=1%)	1.3 g	2 g
Dimensions & other specifications		
Balance dimensions (W × D × H)	282 × 362 × 123 mm	280 × 360 × 185 mm
Weighing pan dimensions (W × D)	362 × 282 mm	-
Weighing pan dimensions (diameter)	-	220 mm
Weight of the balance	12.1 kg	13.7 kg
Weights for routine testing		
OIML CarePac	#11123009	#11123011
Weights	2 kg F2, 100 g F2	5 kg F2, 200 g F2
ASTM CarePac	#11123109	#11123111
Weights	2 kg 1, 100 g 1	5 kg 4, 200 g 4

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

³⁾ In the temperature range 10 ... 30 °C

10.2.4.3 Readability 10 mg

XPR64002LC	
Limit Values	
Maximum capacity	64.1 kg
Readability	10 mg
Tare range (from...to)	0 ... 64.1 kg
Repeatability	35 mg (50 kg)
Repeatability 5x ABA	25 mg (50 kg)
Repeatability 5x ABA at low load	10 mg (2 kg)
Linearity deviation	50 mg (10 kg)
Eccentricity deviation (test load) ²⁾	0.4 g (20 kg)
Sensitivity offset (at nominal load) ¹⁾	1.6 g (50 kg)
Sensitivity temperature drift ³⁾	0.0003 %/°C
Sensitivity stability ³⁾	0.003 %/a
Typical values	
Repeatability	18 mg
Repeatability 5 x ABA typical	20 mg
Linearity deviation	28 mg
Eccentricity deviation (test load) ²⁾	240 mg (20 kg)
Sensitivity offset (test weight)	650 mg (50 kg)
USP minimum sample weight (5% load, k=2, U=0.1%)	36 g
Minimum sample weight (5% load, k=2, U=1%)	3.6 g
Dimensions & other specifications	
Balance dimensions (W × D × H)	282 × 362 × 123 mm
Weighing pan dimensions (W × D)	362 × 282 mm
Weighing pan dimensions (diameter)	-
Weight of the balance	12.1 kg
Weights for routine testing	
OIML CarePac	#11123009
Weights	2 kg F2, 100 g F2
ASTM CarePac	#11123109
Weights	2 kg 1, 100 g 1

sd = Standard deviation

¹⁾ After adjustment with internal reference weight

²⁾ According to OIML R76

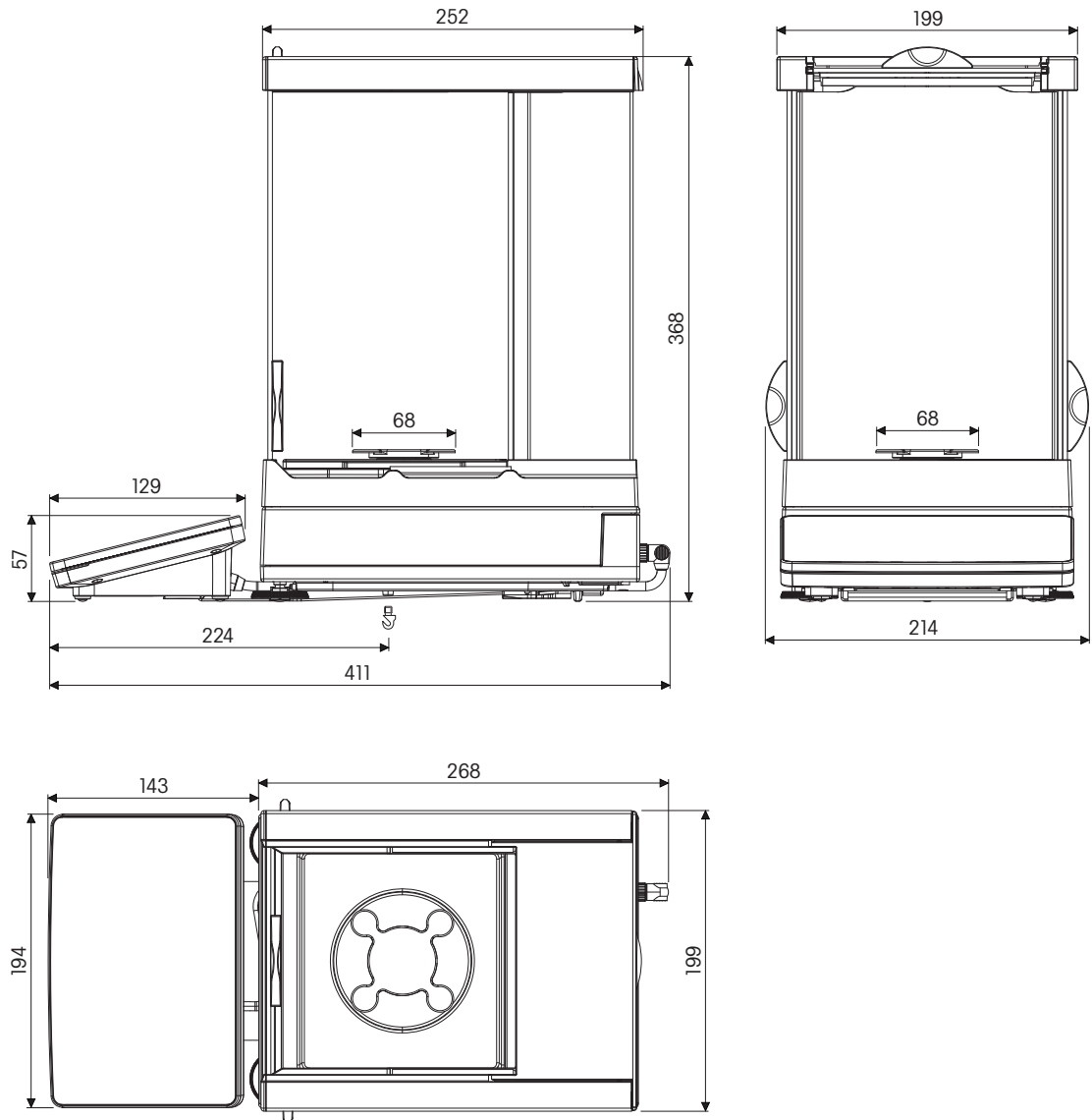
³⁾ In the temperature range 10 ... 30 °C

10.3 Dimensions

10.3.1 Balances with S weighing platform

10.3.1.1 Readability 0.1 mg, with Pro Draft Shield and SmartPan weighing pan

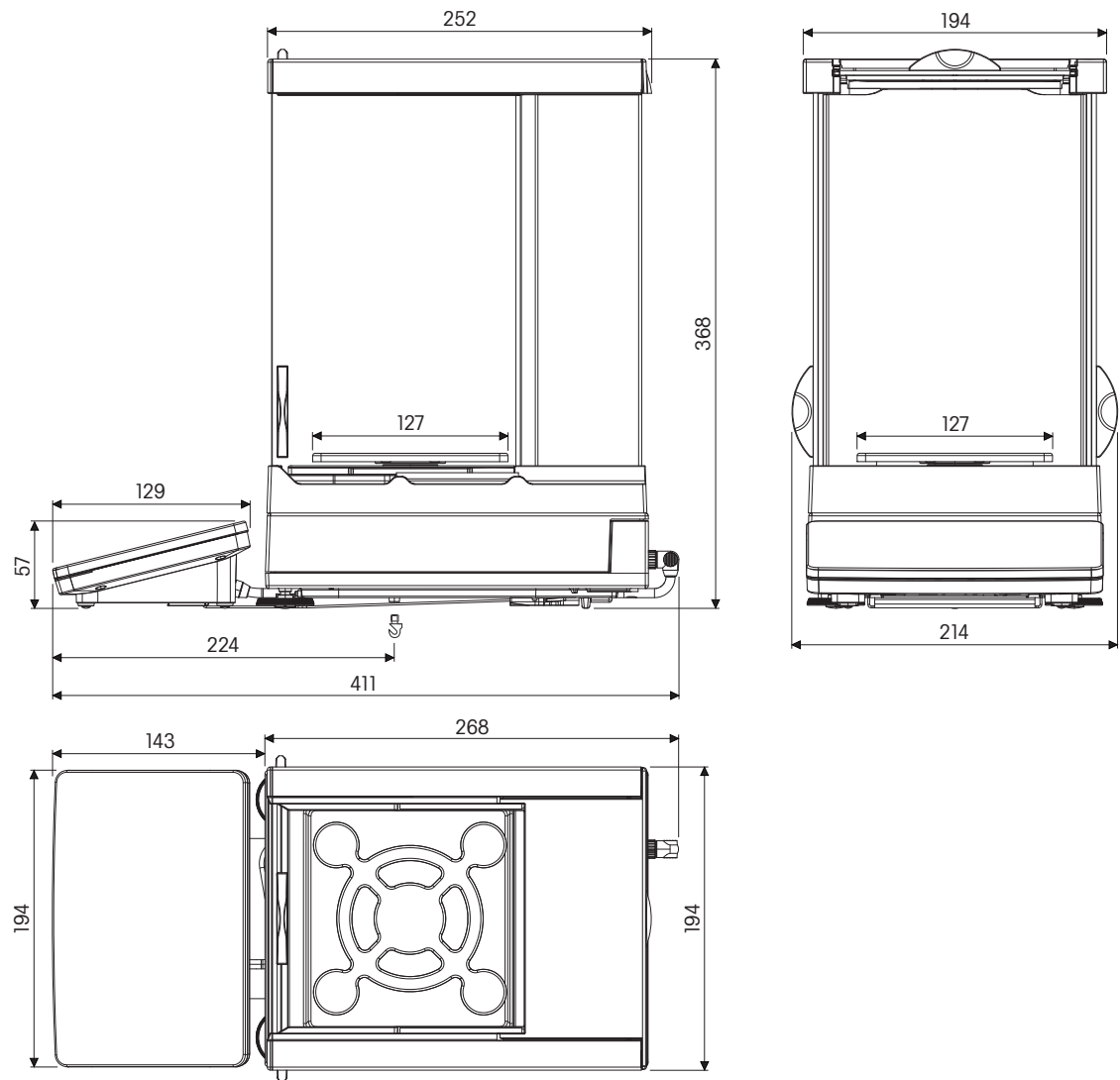
Models: XRP204S, XPR404S, XPR504S, XPR504SDR



All dimensions in mm

10.3.1.2 Readability 1 mg, with Pro Draft Shield and SmartPan weighing pan

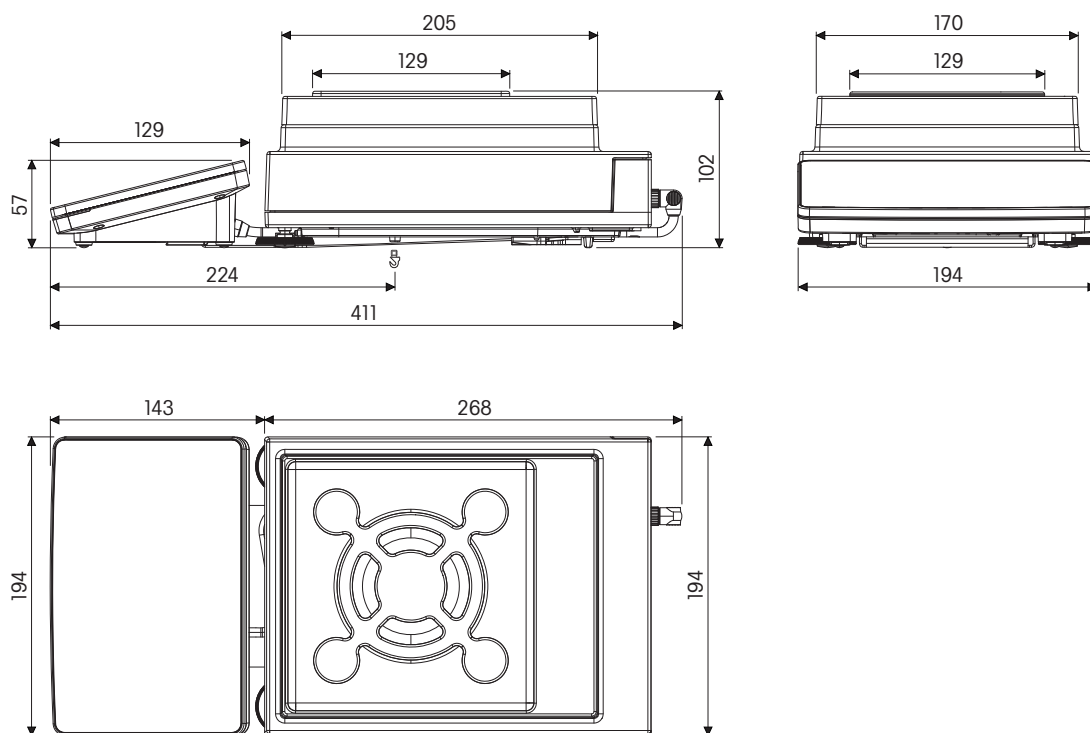
Models: XPR303S, XPR603S, XPR603SDR, XPR1203S, XPR3003S, XPR5003S



All dimensions in mm

10.3.1.3 Readability 1 mg, with SmartPan weighing pan

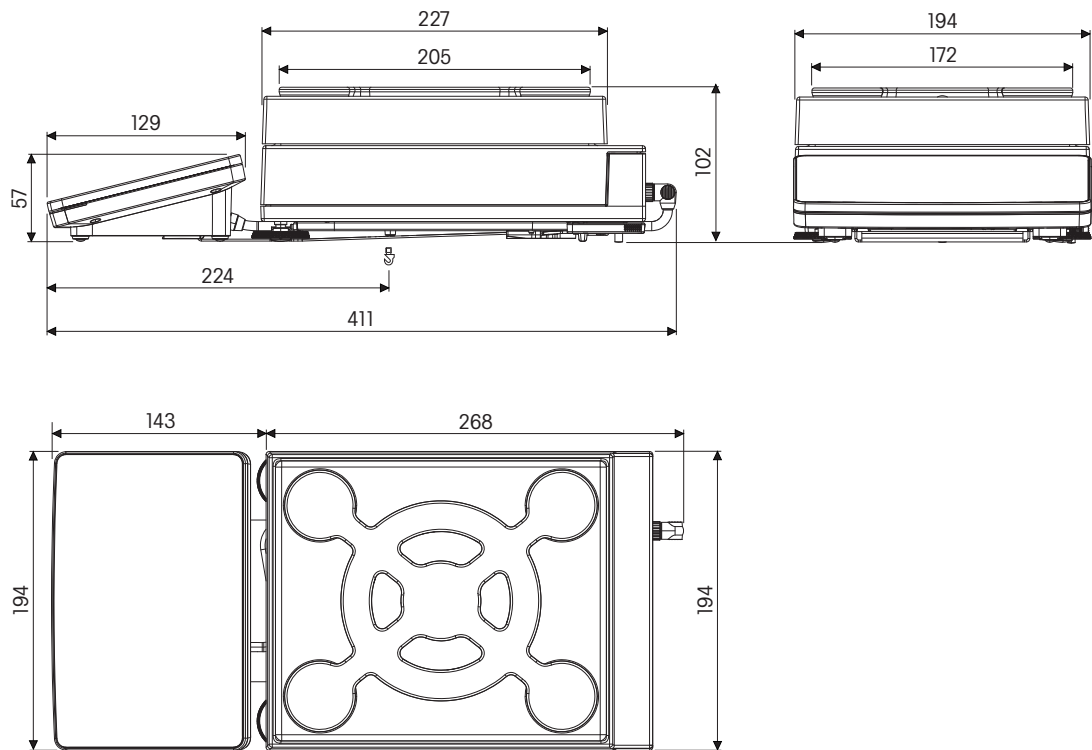
Models: XPR303SN, XPR603SN, XPR603SNDR



All dimensions in mm

10.3.1.4 Readability 5 mg / 10 mg, with SmartPan weighing pan

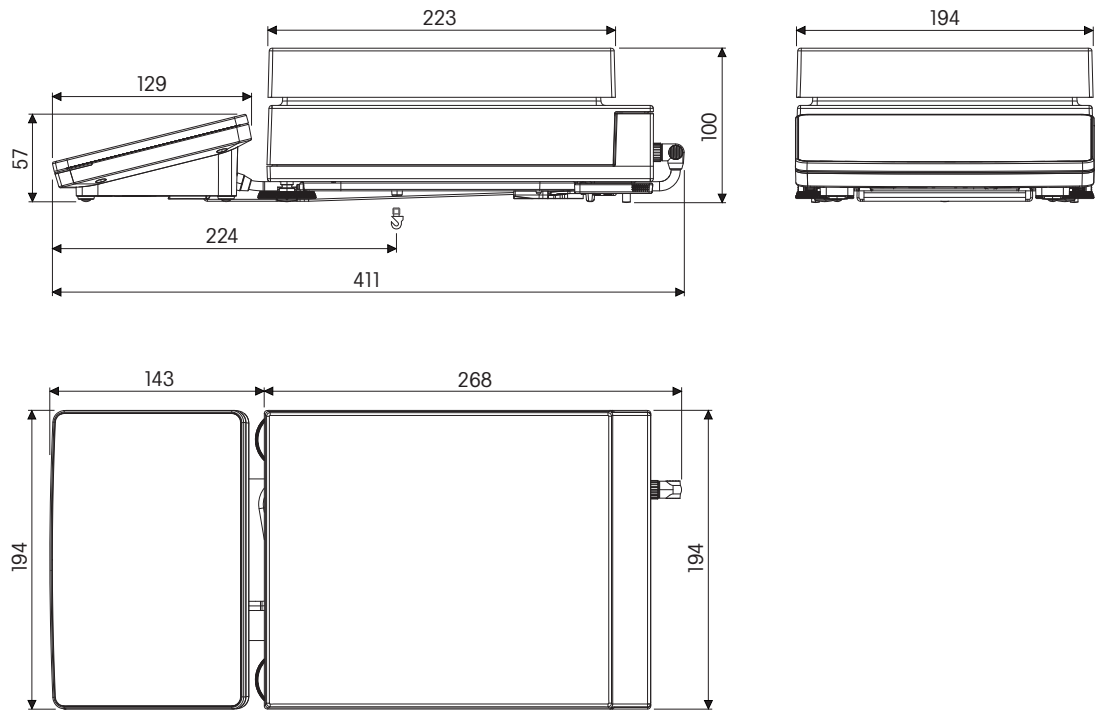
Models: XPR3003SD5, XPR6003SD5, XPR1202S, XPR2002S, XPR4002S, XPR6002S, XPR6002SDR, XPR8002S, XPR10002S



All dimensions in mm

10.3.1.5 Readability 0.1 g

Models: XPR4001S, XPR6001S, XPR8001S, XPR10001S

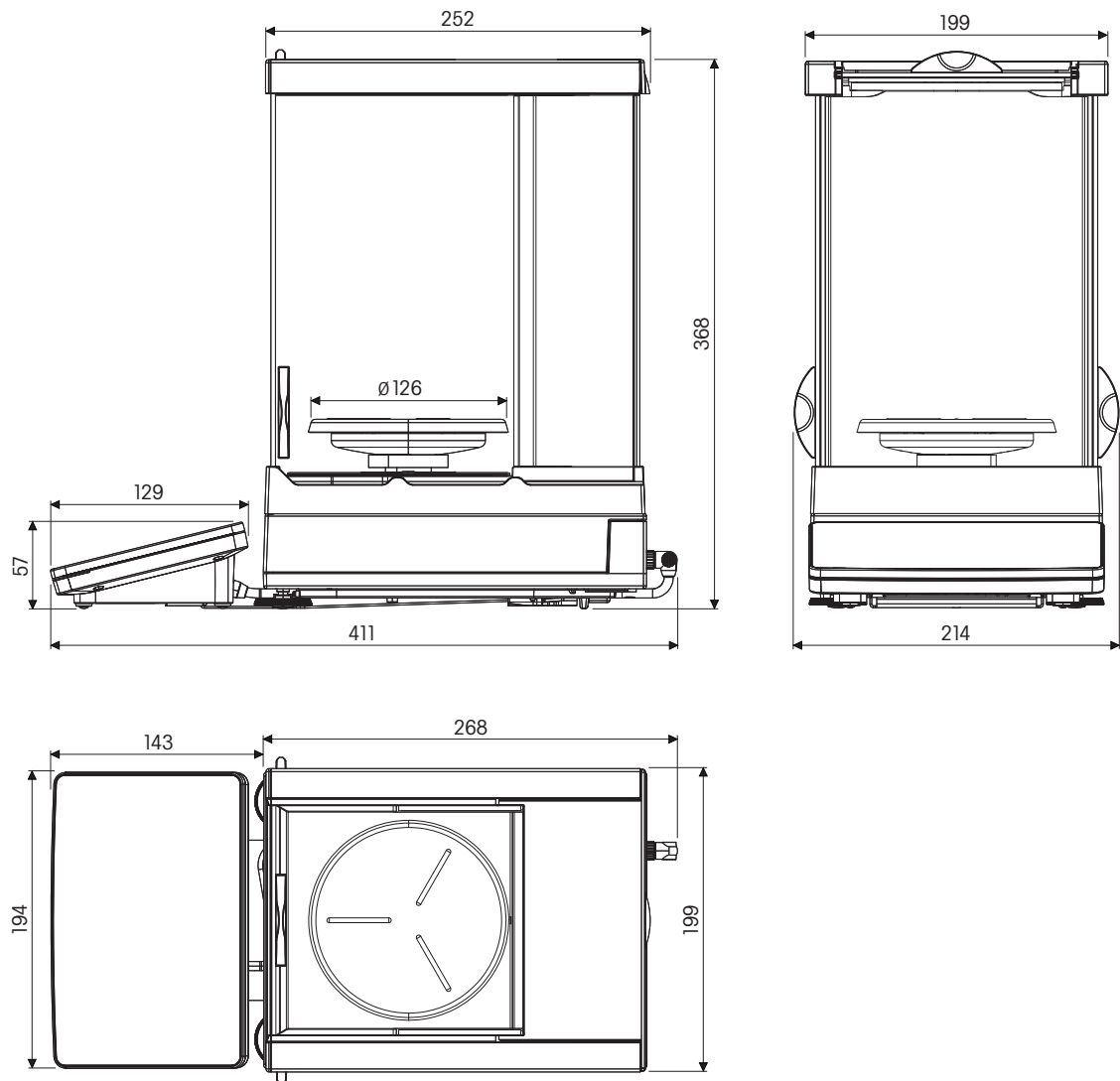


All dimensions in mm

10.3.2 Comparators with S weighing platform

10.3.2.1 Readability 0.1 mg, with Pro Draft Shield and LevelMatic weighing pan

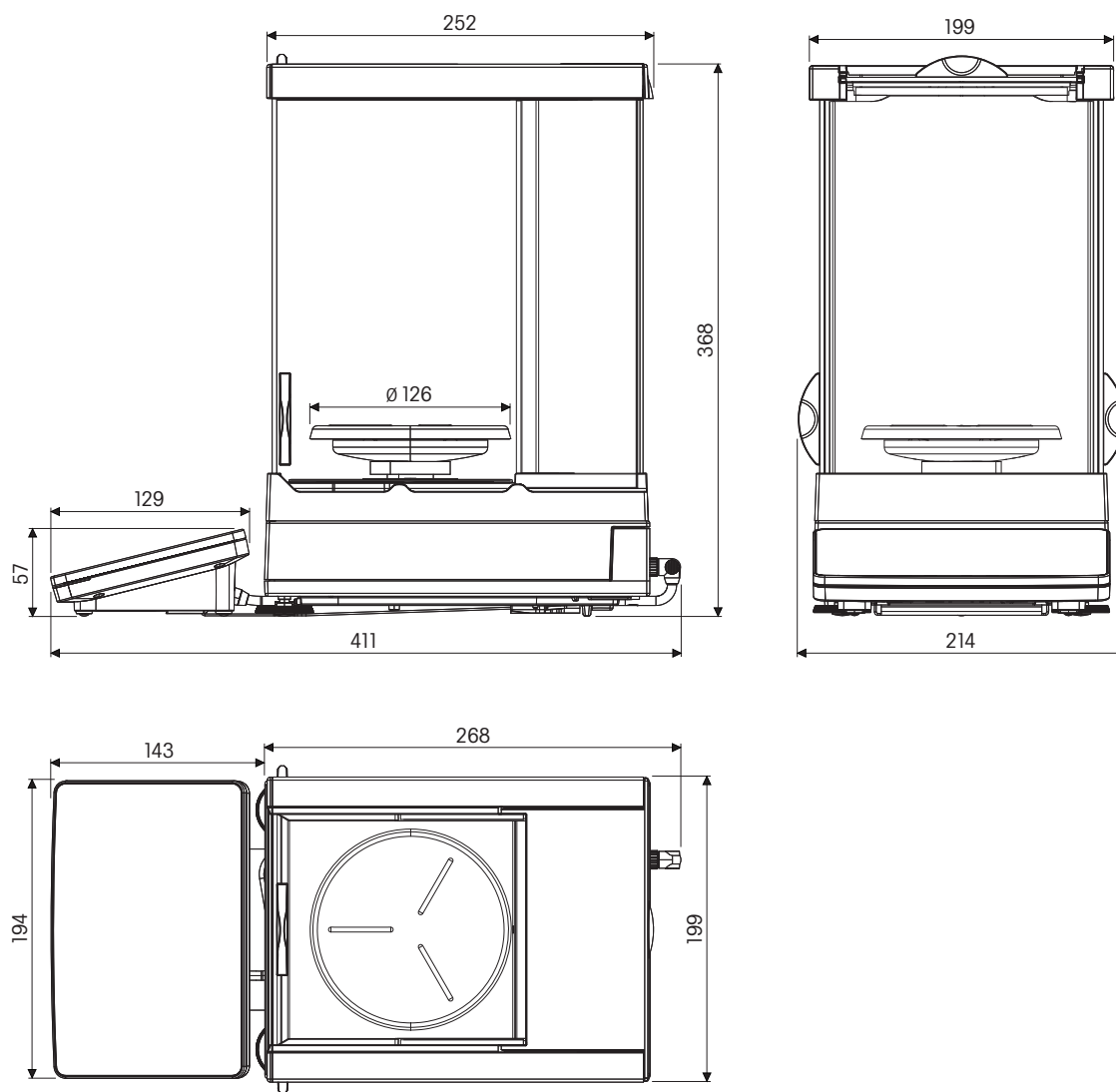
Models: XPR2004SC



All dimensions in mm

10.3.2.2 Readability 1 mg, with Pro Draft Shield and LevelMatic weighing pan

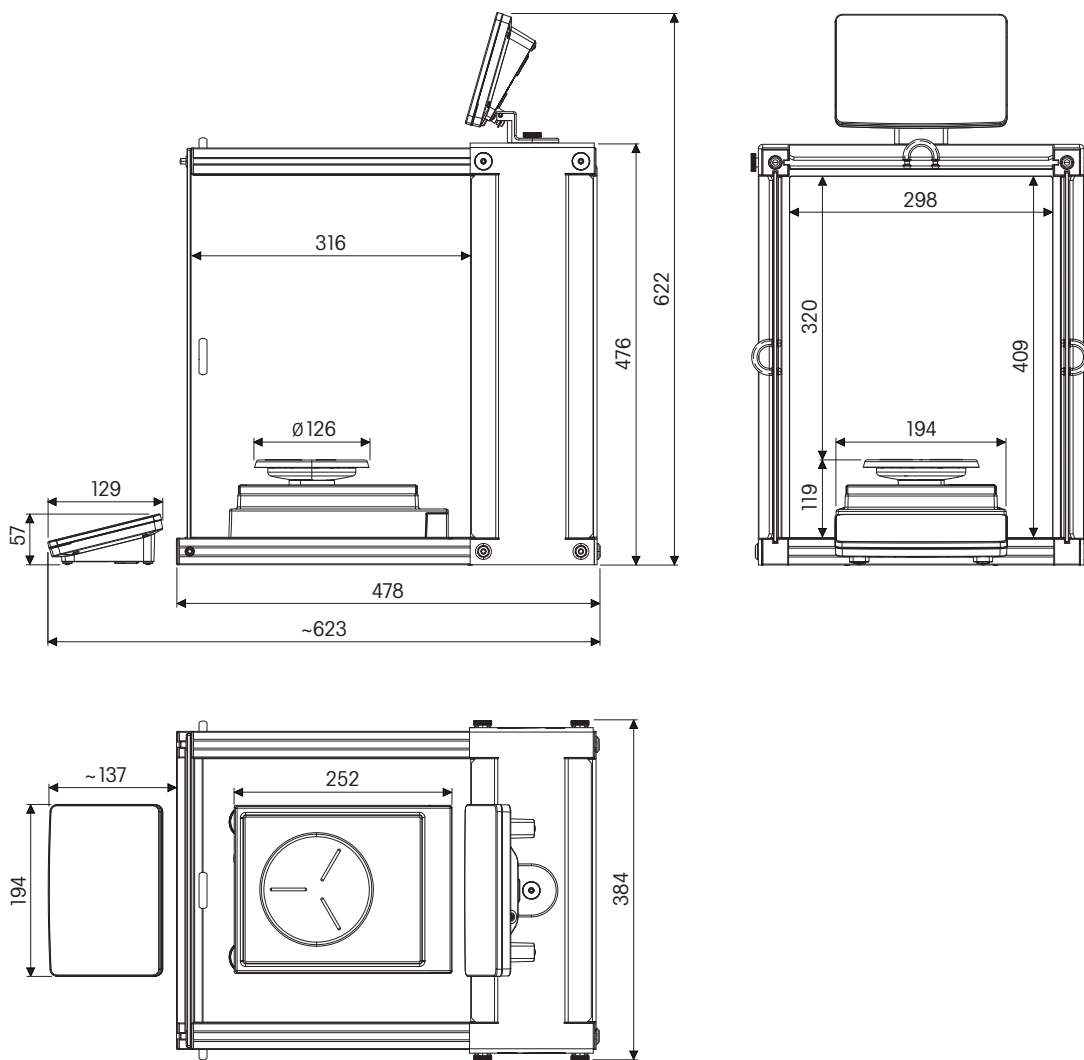
Models: XPR5003SC



All dimensions in mm

10.3.2.3 Readability 1 mg, with XP-W12 draft shield and LevelMatic weighing pan

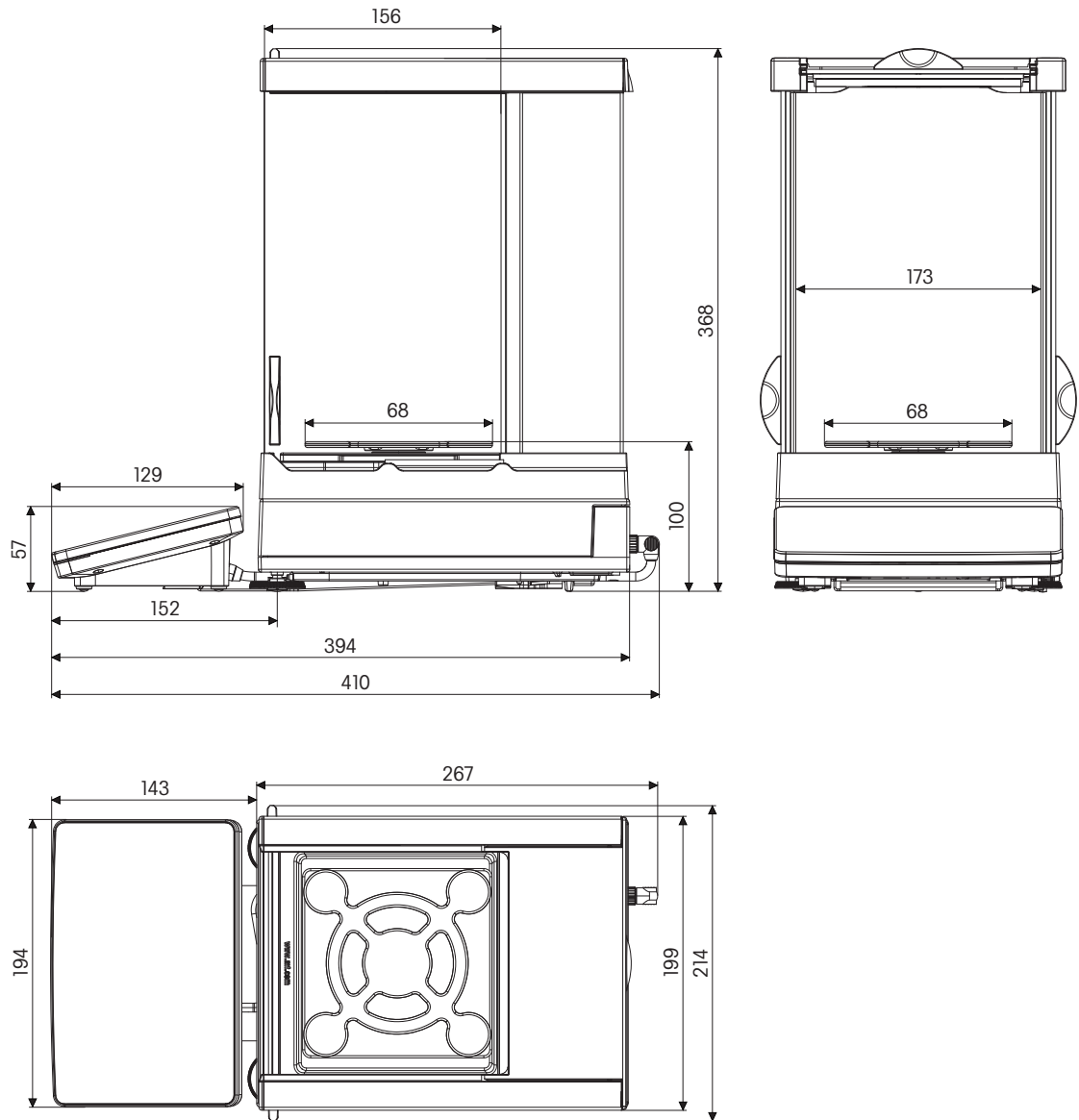
Models: XPR10003SC



All dimensions in mm

10.3.2.4 Readability 1 mg, with Pro Draft Shield

Models: XPR2003SC

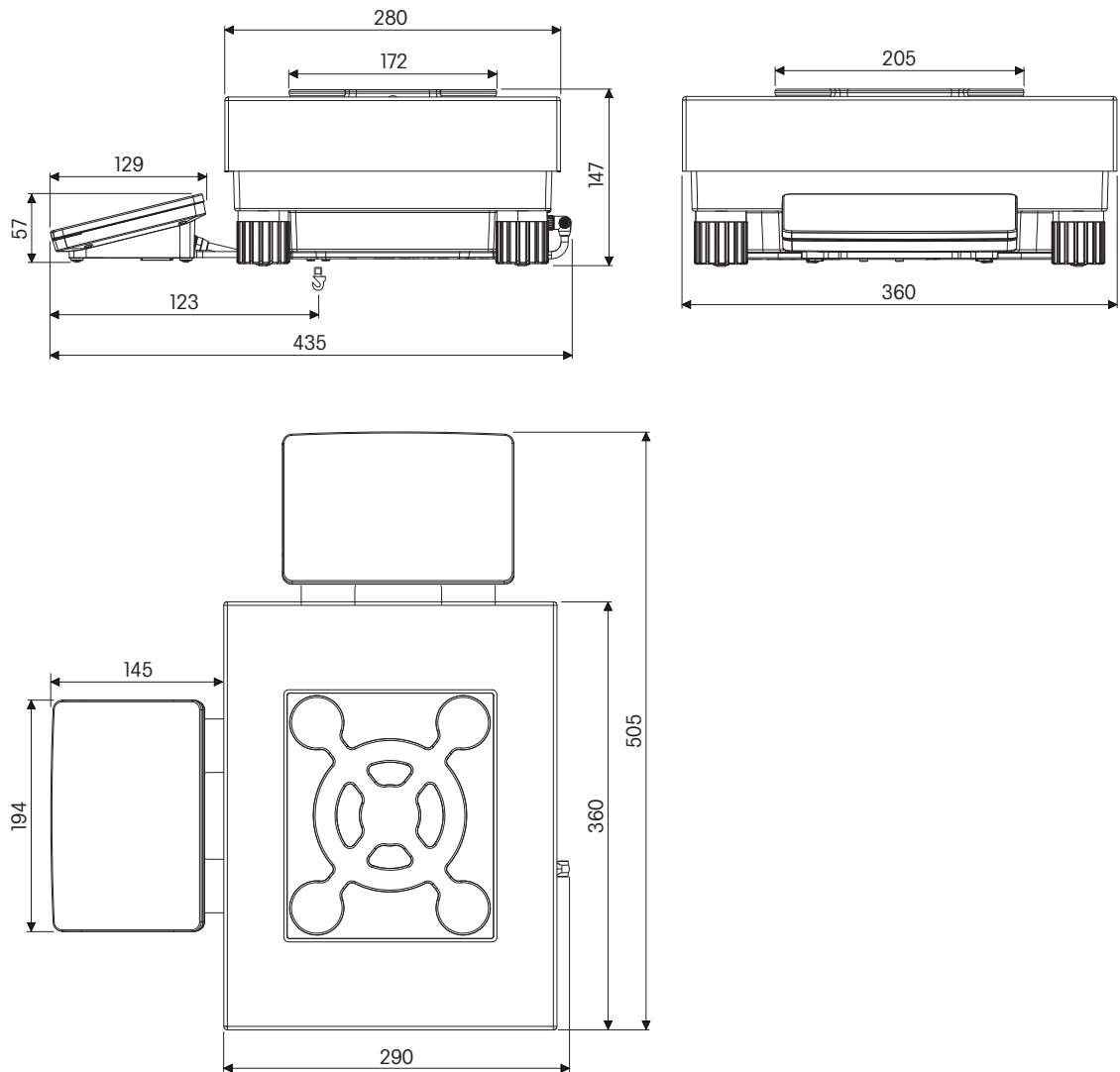


All dimensions in mm

10.3.3 Balances with L weighing platform

10.3.3.1 Readability 10 mg, with SmartPan weighing pan

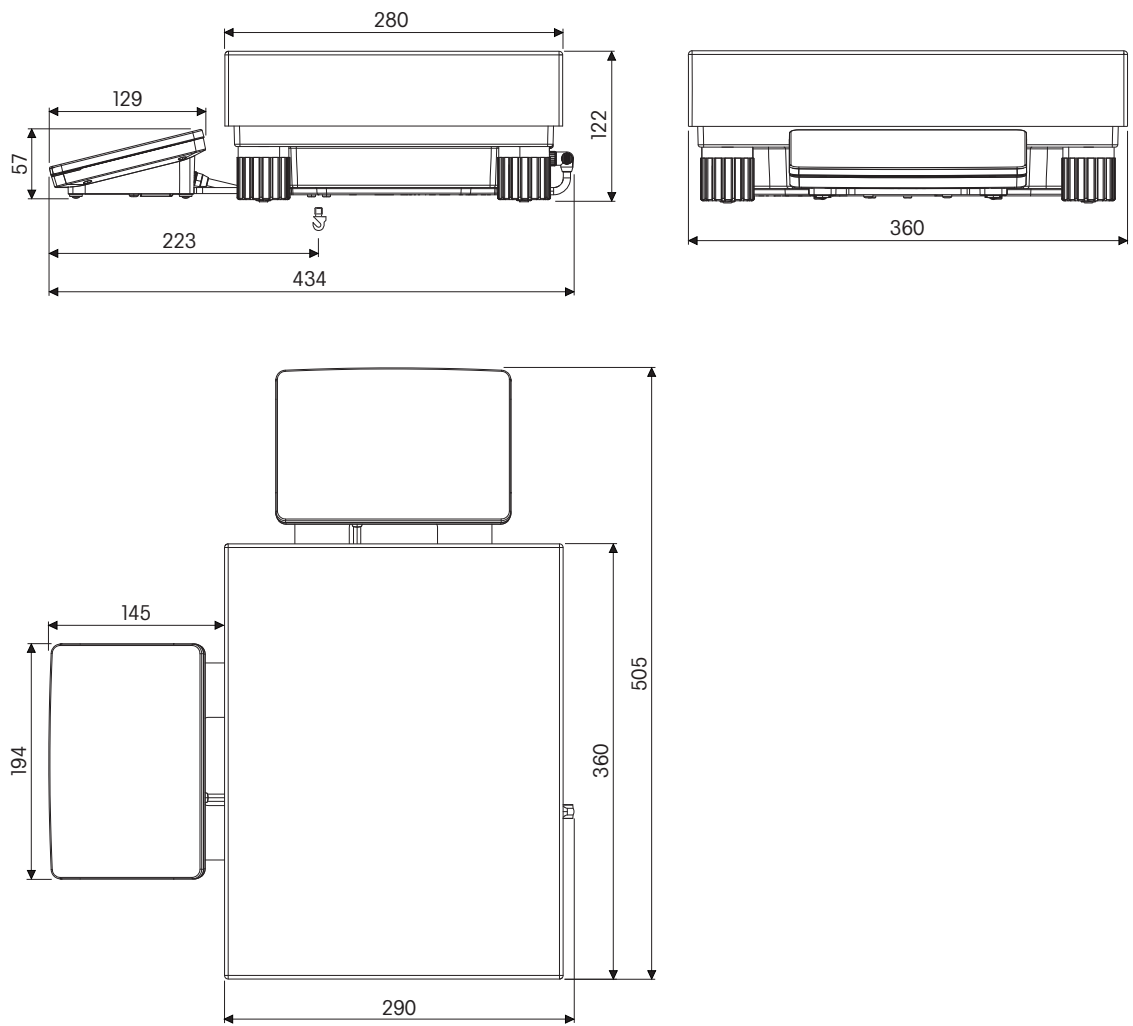
Models: XPR15002L, XPR20002LDR



All dimensions in mm

10.3.3.2 Readability 0.1 g / 1 g

Models: XPR10001L, XPR16001L, XPR32001L, XPR64001L, XPR32000L, XPR64000L

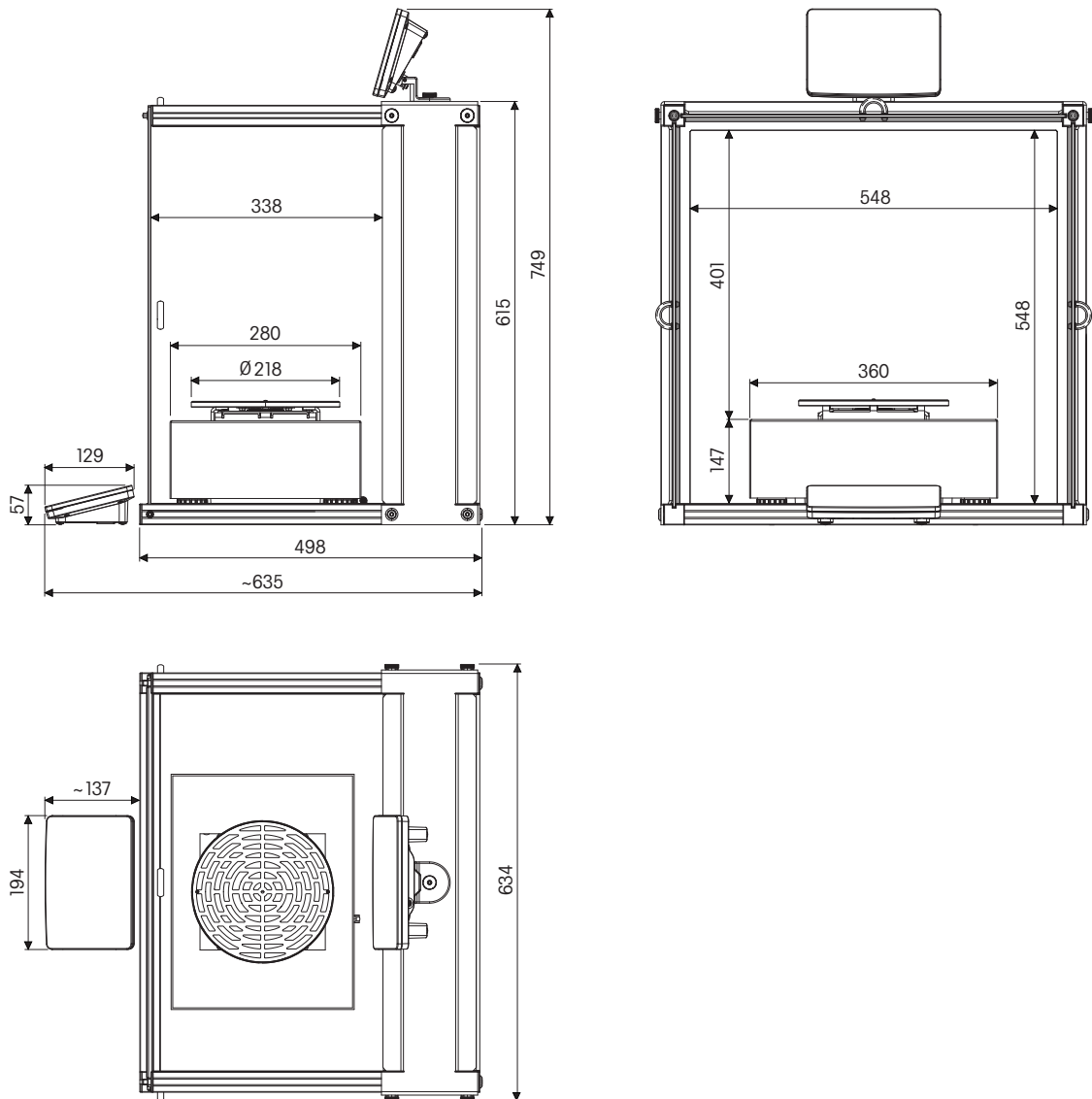


All dimensions in mm

10.3.4 Comparators with L weighing platform

10.3.4.1 Readability 1 mg / 5 mg, with XP-W64 draft shield and LevelMatic weighing pan

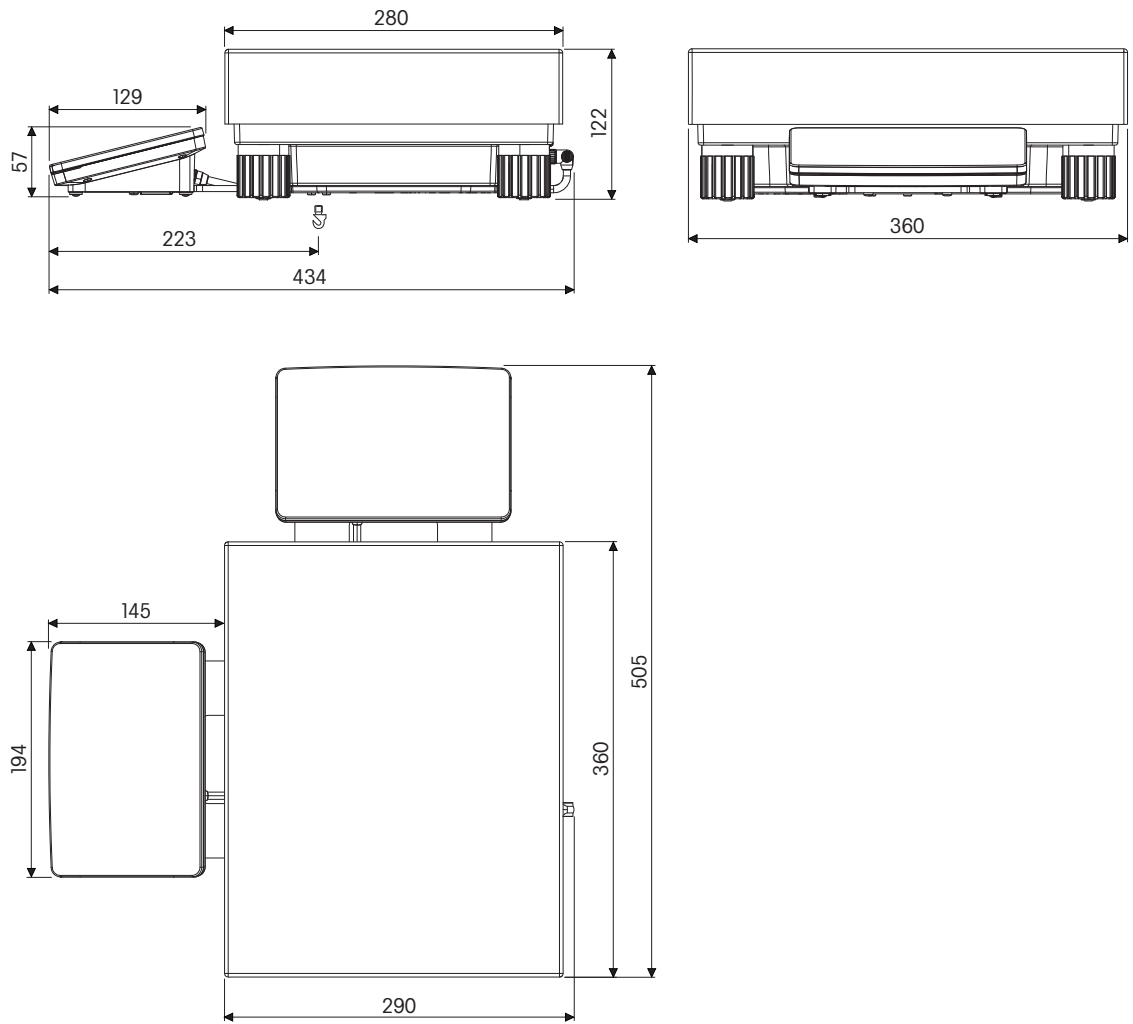
Models: XPR26003LC, XPR64003LD5C



All dimensions in mm

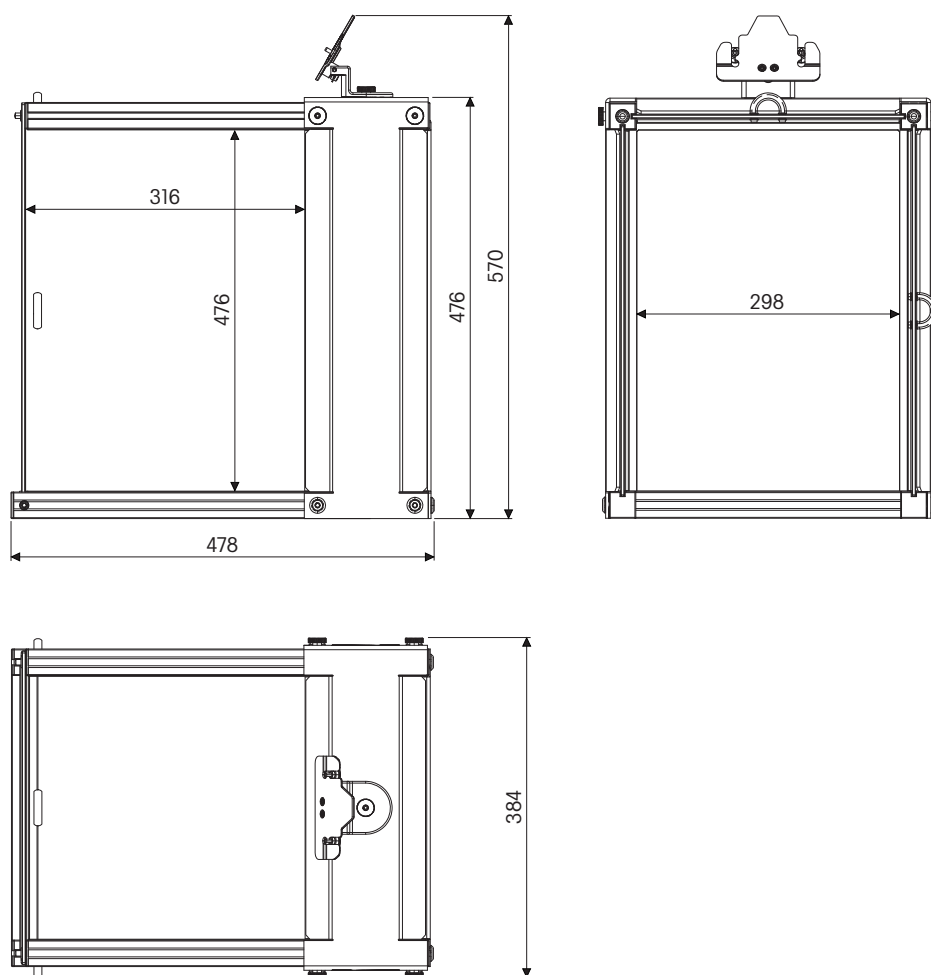
10.3.4.2 Readability 5 mg / 10 mg

Models: XPR32003LD5C, XPR64002LC



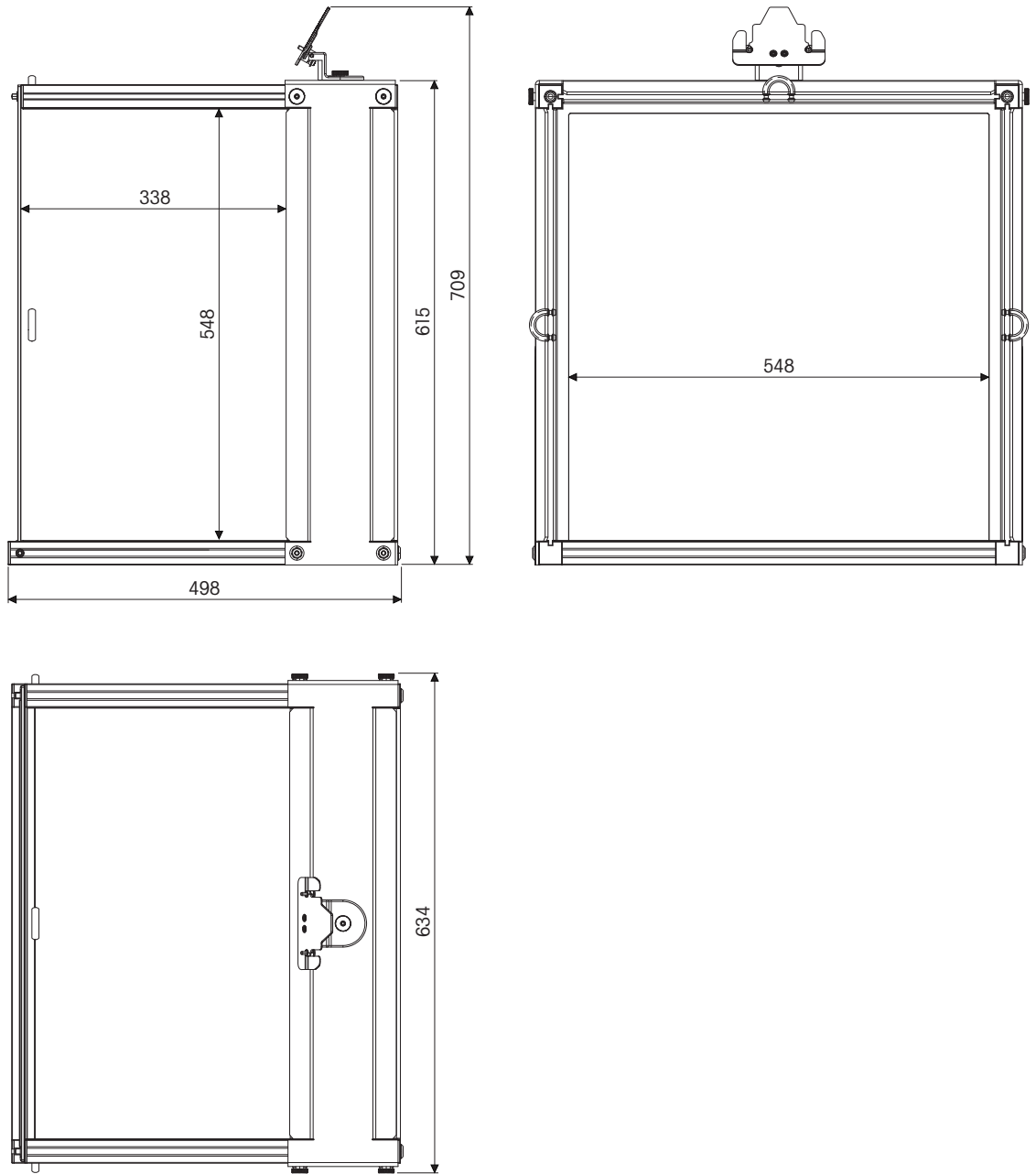
All dimensions in mm

10.3.5 Draft shield XP-W12 (for models with S weighing platform)



All dimensions in mm

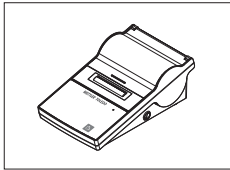
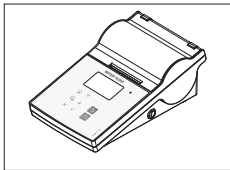


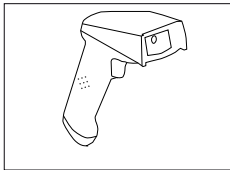
10.3.6 Draft shield XP-W64 (for models with L weighing platform))

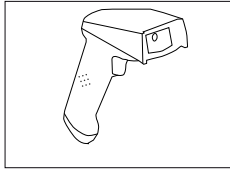


All dimensions in mm

11 Accessories and Spare Parts

11.1 Accessories

	Description	Part No.	
Printers and Barcode Readers			
	P-52RUE dot matrix printer RS232C, USB and Ethernet connections, simple print-outs.	30237920	
	Paper roll, set of 5 pcs	00072456	
	Paper roll, self-adhesive, set of 3 pcs	11600388	
	Ribbon cartridge, black, set of 2 pcs	00065975	
	P-56RUE thermal printer with RS232, 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 RS232, USB and ethernet connections, simple print-outs, date and time, label printing, balance applications: 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	
	Citizen CLS631 label printer	11141820	
	RS232C Barcode Reader	21901297	
	The following accessories are needed for operation (not included):		
	RS232 F cable	21901305	
	Null modem adapter	21900924	
	Plus one of the following:	AC adapter 5 V for EU	21901370
	AC adapter 5 V for US	21901372	
	AC adapter 5 V for GB	21901371	
AC adapter 5 V for AU	21901370		
	+ 71209966		



RS232C Barcode Reader – Cordless 21901299

The following accessories are needed for operation (not included):

Cradle 21901300

RS232 F cable 21901305

Null modem adapter 21900924

Plus one of the following: AC adapter 12 V for EU 21901373

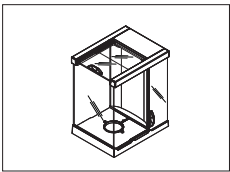
AC adapter 12 V for US 21901375

AC adapter 12 V for GB 21901374

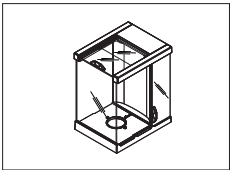
AC adapter 12 V for AU 21901373

+ 71209966

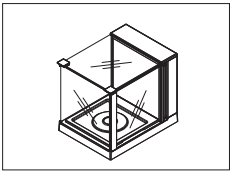
Draft shields



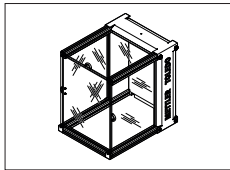
Pro Draft Shield for 0.1 mg and 1 mg models, Height: 248 mm 30300926



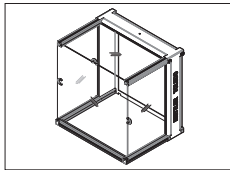
Pro Draft Shield glass free (food industry) for 0.1 mg and 1 mg models, Height: 248 mm 30409092



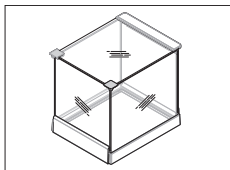
MagicCube Draft Shield for 1 mg models, Height: 175 mm 30300928



Draft shield XP-W12, dimensions (W x D x H): 300 mm x 450 mm x 450 mm, for S weighing platform 11134430



Draft shield XP-W64, dimensions (W x D x H): 550 mm x 470 mm x 580 mm, for L weighing platform 11134470



"Simple" Draft shield with draft shield element for 5 mg and 10 mg models, usable height 175 mm, S platform 30113496

Stands and wall mounting



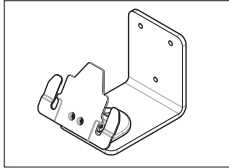
Terminal stand for placement of the terminal 30 cm above the weighing pan, S platform

30125077



Terminal stand for placement of the terminal 30 cm above the weighing pan, L platform

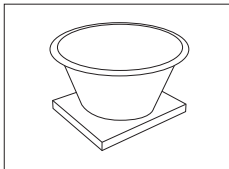
30125333



Wall fixture for terminal

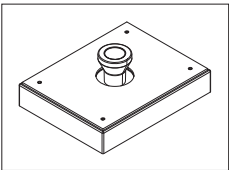
30138798

Weighing pans



Dynamic weighing pan for 0.1 g and 10 mg models, with 4 litre bowl and contact mat, S platform

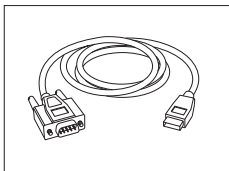
11132657



Bullion Weighing Kit to load or unload heavy items, only for models with L weighing platform

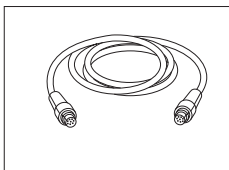
30300944

Cables and interfaces



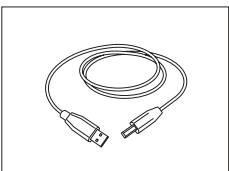
RS232 - USB converter cable – cable with converter to connect a balance (RS232) to a USB port

30364315



Terminal cable, extended, length: 4.5 m

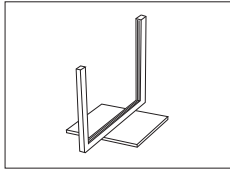
30300920



USB Cable 2.2m MW92153 for MW96000 (USB-USB)

71211078

Antistatic kits



Universal AntiStatic Kit complete (U-shaped), including electrode and power supply

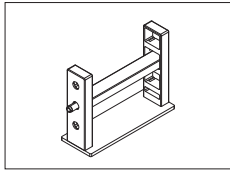
11107767

Optional: Second U-electrode* for universal AntiStatic Kit

11107764

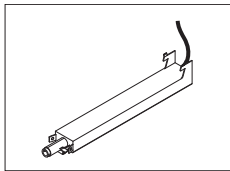
* Power supply for optional, second U-elektrode (11107764)

11107766



USB Antistatic kit for Microbalance including one stand and one compact ionizer

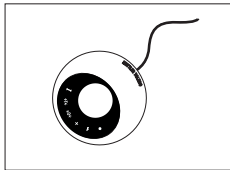
30215452



Optional second compact ionizer for Antistatic kit Microbalance

30300921

Sensors and Switches



ErgoSens, optical sensor for remote operation (USB connection)

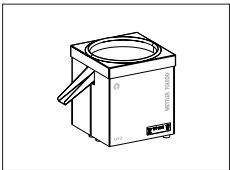
30300915



Foot switch, optional switch for remote operation (USB connection)

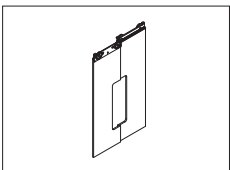
30312558

Filling process control



LV12 automatic feeder

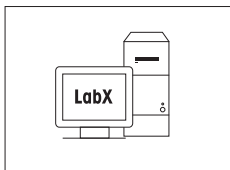
30315631



LV12 Pro Draft Shield door for 0.1 mg and 1 mg models with S weighing platform

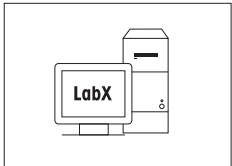
11132711

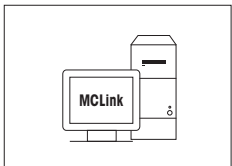
Software




LabX balance express (standalone system)

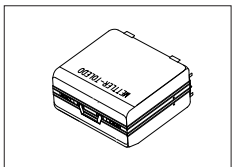
11153120

	LabX balance server (server edition)	11153121
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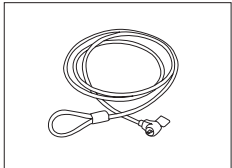
	MC Link mass calibration software	
	MC Link license – 1 Instrument	30208285
	MC Link Upgrade Multi Place	30208289
	MC Link Option – Barcode Package	30212767
	MC Link Option – Audit Trail	30208283
	MC Link Validation Handbook	30212634
	MC Link Remote Installation Service	30212635

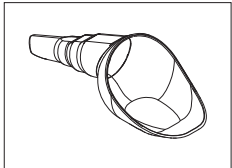
Other Accessories


	USB Bluetooth Adapter	30416089
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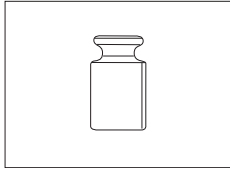
	Transport case for 5 mg, 10 mg and 0.1 g models, S platform	30113497
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	Hook for Platform L	11132565
---	---------------------	----------

	Steel cable with lock	11600361
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	SmartPrep, single-use funnel for quick and easy sample preparation. For flask sizes 10/19, 12/21, 14/23. 50 pcs	30061260
---	---	----------

	Carepacs	
	For example: Weight 1: Nominal weights 200 g Class F2 + Weight 2: Nominal weight 10 g Class F1	11123001



Individual test weights

For example:
10 g Class E2

11123047

Information about other CarePacs and individual test weights can be found under: ► www.mt.com/weights

11.2 Spare parts

11.2.1 Balances S weighing platform

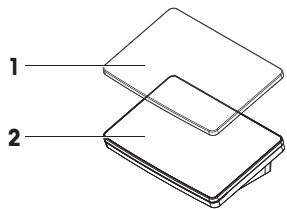

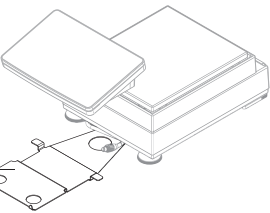
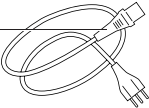
	Pos.	Description	Models	Part No.
<p>0.1 mg</p>	1	SmartPan weighing pan (67 x 67 mm)	0.1 mg	30416103
	2	DripTray	0.1 mg	30416108
	3	Protective cover for weighing platform	0.1 mg	30300967
	4	Weighing pan (127 x 127 mm)	1 mg	11131022
	5	SmartPan weighing pan (127 x 127 mm)	1 mg	30215431
	6	DripTray (for models with draft shield)	1 mg	30416108
	7	Protective cover for weighing platform	1 mg	30300967
	8	SmartPan weighing pan (127 x 127 mm)	1 mg	30215431
	9	Drip Tray (models without draft shield)	1 mg	30416102
	10	Protective cover for weighing platform	1 mg	30300967
<p>1 mg</p>	4	Weighing pan (127 x 127 mm)	1 mg	11131022
	5	SmartPan weighing pan (127 x 127 mm)	1 mg	30215431
	6	DripTray (for models with draft shield)	1 mg	30416108
	7	Protective cover for weighing platform	1 mg	30300967
	8	SmartPan weighing pan (127 x 127 mm)	1 mg	30215431
	9	Drip Tray (models without draft shield)	1 mg	30416102
	10	Protective cover for weighing platform	1 mg	30300967

	Pos.	Description	Models	Part No.	
<p>5 mg / 10 mg</p>	1	Protective cover for weighing pan (172 x 205 mm)	5 mg / 10 mg	30106207	
	2	Weighing pan (172 x 205 mm)	5 mg / 10 mg	30215056	
	3	SmartPan weighing pan (172 x 205 mm)	5 mg / 10 mg	30215057	
	4	DripTray	5 mg / 10 mg	30113501	
	5	Stop screws (2 pieces)	5 mg / 10 mg	30215373	
	6	Weighing pan support cap	5 mg / 10 mg	11131029	
	7	Platform protective cover	5 mg / 10 mg	30300966	
	<p>0.1 g</p>	8	Protective cover for weighing pan (190 x 223 mm)	0.1 g	30106204
		9	Weighing pan (190 x 223 mm)	0.1 g	11131031
		10	Weighing pan support	0.1 g	11131037
		11	Weighing pan support cap	0.1 g	11131029
		12	Stop screw (2 pieces)	0.1 g	11131073
		13	Fastening plate	0.1 g	11131067
		14	Protective cover for platform	0.1 g	30300966

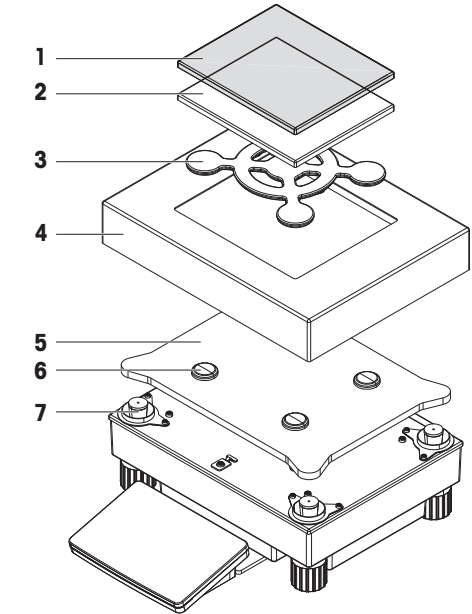
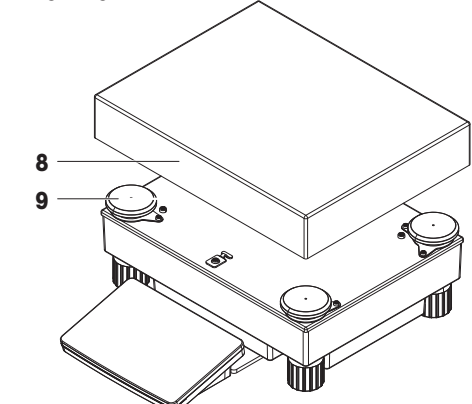
11.2.2 Comparators S weighing platform

	Pos.	Description	Models	Part No.
<p>0.1 mg, 1 mg</p>	1	LevelMatic weighing pan complete	0.1 mg, 1 mg	11131123
	2	Protective cover for weighing platform	0.1 mg, 1 mg	30300967
	3	Weighing pan (127 x 127 mm)	1 mg	11131022
	4	SmartPan weighing pan (127 x 127 mm)	1 mg	30215431
	5	DripTray	1 mg	30416108
	6	Protective cover for weighing platform	1 mg	30300967
<p>1 mg</p>				

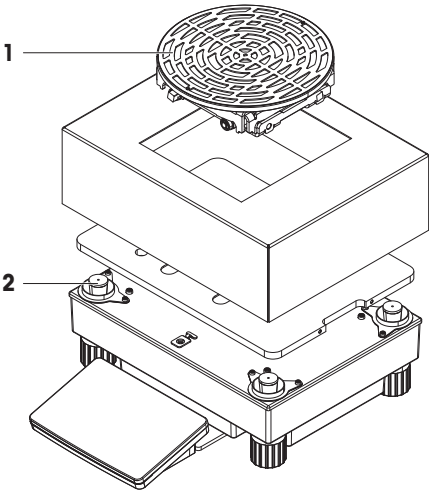
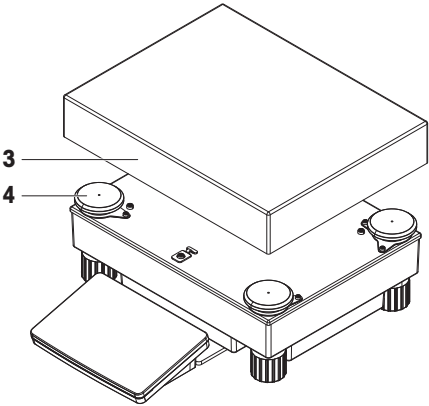
11.2.3 S Platform miscellaneous

	Pos.	Description	Models	Part No.
	1	Protective cover for XPR terminal	all models	30125377
	2	XPR terminal	all models	30317506
	3	Terminal connection cable	all models	30416123
	4	Terminal holder	all models	30215058
	5	Leveling foot	all models	30072531
	6	AC/DC Power adapter	all models	30388323
	7	Country-specific power cable	all models	
		Power cable AU	all models	00088751
		Power cable BR	all models	30015268
		Power cable CH	all models	00087920
		Power cable CN	all models	30047293
		Power cable DK	all models	00087452
		Power cable EU	all models	00087925
		Power cable GB	all models	00089405
		Power cable IL	all models	00225297
		Power cable IN	all models	11600569
		Power cable IT	all models	00087457
		Power cable JP	all models	11107881
		Power cable TH, PE	all models	11107880
		Power cable US	all models	00088668
	Power cable ZA	all models	00089728	

11.2.4 Balances L weighing platform

	Pos.	Description	Models	Part No.
<p>10 mg</p> 	1	Protective cover for weighing pan (172 x 205 mm)	10 mg	30106207
	2	Weighing pan (172 x 205 mm)	10 mg	30215056
	3	SmartPan weighing pan (172 x 205 mm)	10 mg	30215057
	4	Draft shield element	10 mg	30215365
	5	Adapter plate	10 mg	30215366
	6	Weighing pan support cap	10 mg	11131029
	7	Adapter plate support cap	10 mg	30416106
	8	Weighing pan (280 x 360 mm)	0.1 g, 1 g	239105
	8	Weighing pan (280 x 360 mm) for balances with capacity of 64 kg	0.1 g, 1 g	11102124
<p>0.1 g / 1 g</p> 	9	Weighing pan support cap	0.1 g, 1 g	30416105
	9	Weighing pan support cap for balances with capacity of 64 kg	0.1 g, 1 g	30416107

11.2.5 Comparators L weighing platform

	Pos.	Description	Models	Part No.
	1	LevelMatic complete	1 mg, 5 mg, 10 mg	11120415
	2	Pan support for LevelMatic	1 mg, 5 mg, 10 mg	11120418
	3	Weighing pan (280 x 360 mm)	1 mg, 5 mg, 10 mg	00239105
	3	Weighing pan (280 x 360 mm) for models with a capacity of 64 kg	5 mg, 10 mg	11102124
	4	Weighing pan support cap	1 mg, 5 mg, 10 mg	00239104
	4	Weighing pan support cap for models with a capacity of 64 kg	5 mg, 10 mg	30416107
				

11.2.6 L platform miscellaneous

	Pos.	Description	Models	Part No.	
	1	Protective cover for XPR terminal	all models	30125377	
	2	XPR terminal	all models	30317506	
	3	Terminal connection cable	all models	30416123	
	4	Terminal holder	all models	30215058	
	5	AC/DC Power adapter	all models	30388323	
	6	Country-specific power cable	all models		
			Power cable AU	all models	00088751
			Power cable BR	all models	30015268
			Power cable CH	all models	00087920
			Power cable CN	all models	30047293
			Power cable DK	all models	00087452
			Power cable EU	all models	00087925
			Power cable GB	all models	00089405
			Power cable IL	all models	00225297
			Power cable IN	all models	11600569
			Power cable IT	all models	00087457
			Power cable JP	all models	11107881
			Power cable TH, PE	all models	11107880
			Power cable US	all models	00088668
			Power cable ZA	all models	00089728

11.2.7 Pro Draft Shield

	Pos	Description	Part No.
		Pro Draft Shield complete	30300926
	1	Door front left	11133080
	2	Door back left	11133079
	3	Door top front	11133082
	4	Door top back	11133081
	5	Door back right	11133077
	6	Door front right	11133078
	7	Ring seal, for models with 0.1 mg	11131551

11.2.8 Packaging

Description	Part No
Complete packaging (with box for Pro Draft Shield)	30416124
Export carton (with box for Pro Draft Shield)	30413311
Box for Pro Draft Shield	30300986
Export carton for Pro Draft Shield	30414572
Packaging complete (without box for Pro Draft Shield)	30300983
Export carton (without box for Pro Draft Shield)	30414570
Packaging complete for L weighing platform with 0.1 g and 1 g	30300985
Packaging complete for L weighing platform with 10 mg	30416125
Export carton for L weighing platform with 10 mg	30008482

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- Calibrate and operate your weighing equipment with security
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