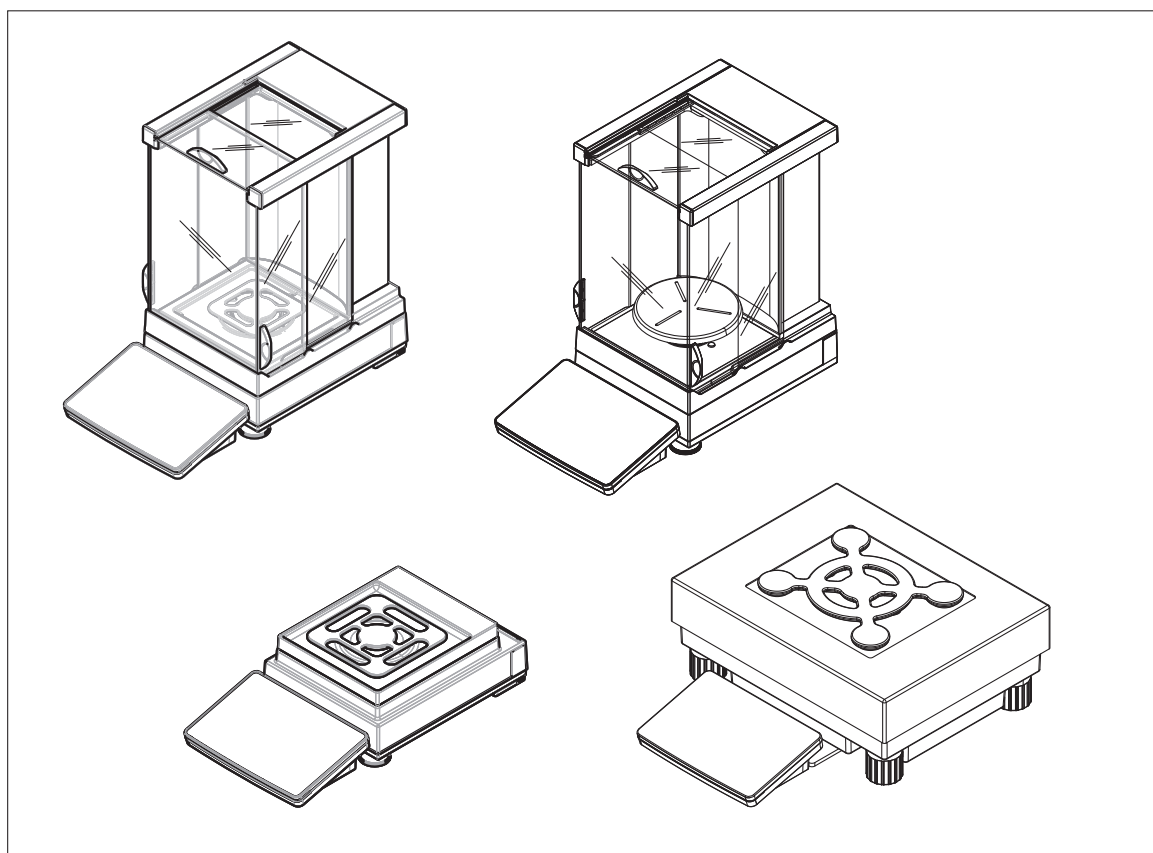


Precision Balances and Comparators

XPR



METTLER TOLEDO

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1 Introduction

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

This document is based on the software version V 2.0.501.

Disclaimer for comparators

In this document, the term "balance" is used to describe both balances and comparators.

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

EULA

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

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

► www.mt.com/EULA

1.1 Further documents and information

This document is available in other languages online.

► www.mt.com/XPR-precision-RM

Product page:

► www.mt.com/XPR-precision

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

► www.mt.com/lab-cleaning-guide

Search for software:

► www.mt.com/labweighing-software-download

Search for documents:

► www.mt.com/library

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

► www.mt.com/contact

1.2 Explanation of conventions and symbols used

Conventions and symbols

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

Note

For useful information about the product.



Refers to an external document.

Elements of instructions

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

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

1 Step 1

➡ Intermediate result

2 Step 2

➡ Result

1.3 Acronyms and abbreviations

Original term	Explanation
AC	Alternating Current
ASTM	American Society for Testing and Materials
DC	Direct Current
EMC	Electromagnetic Compatibility
FCC	Federal Communications Commission
GWP	Good Weighing Practice
HID	Human Interaction Device
ID	Identification
LED	Light-Emitting Diode
LPS	Limited Power Source
MAC	Media Access Control
MT-SICS	METTLER TOLEDO Standard Interface Command Set
NA	Not Applicable
OIML	Organisation Internationale de Métrologie Légale (International Organization of Legal Metrology)
RAM	Random Access Memory
RFID	Radio-frequency identification
RM	Reference Manual
SELV	Safety Extra Low Voltage
SOP	Standard Operating Procedure
SQC	Statistical Quality Control
UM	User Manual
USB	Universal Serial Bus
USP	United States Pharmacopeia

1.4 Product range

1.4.1 XPR precision balances

1.4.1.1 S weighing platform

Balance	Models designation
	Readability: 0.1 mg • XPR204S • XPR404S • XPR504S

Balance	Models designation
	Readability: 0.5 mg • XPR3004SD5
	Readability: 1 mg • XPR303S • XPR603S • XPR1203S • XPR2003S • XPR3003S • XPR5003S
	Readability: 1 mg • XPR303SN • XPR603SN • XPR1203SN
	Readability: 5 mg • XPR6003SD5 • XPR12003SD5
	Readability: 10 mg • XPR1202S • XPR2002S • XPR4002S • XPR6002S • XPR6002SDR • XPR8002S • XPR12002S
	Readability: 100 mg • XPR4001S • XPR8001S • XPR12001S

1.4.1.2 L weighing platform

Balance	Models designation
	Readability: 10 mg • XPR15002L • XPR20002LDR
	Readability: 100 mg • XPR10001L • XPR16001L • XPR32001L
	Readability: 100 mg • XPR64001L
	Readability: 1 g • XPR32000L • XPR64000L

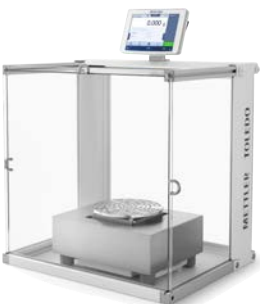
1.4.2 XPR precision comparators

1.4.2.1 S weighing platform

Balance	Models designation
	Readability: 0.1 mg • XPR2004SC • XPR5004SC
	Readability: 1 mg • XPR5003SC
	Readability: 1 mg • XPR2003SC

Balance	Models designation
	Readability: 1 mg • XPR10003SC

1.4.2.2 L weighing platform

Balance	Models designation
	Readability: 1 mg • XPR26003LC • XPR64003LD5C
	Readability: 1 mg • XPR32003LD5C
	Readability: 10 mg • XPR64002LC
	Readability: 10 mg • XPR64002LC-T

1.5 Compliance information

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

► www.mt.com/ComplianceSearch

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

► www.mt.com/contact

United States of America

This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and

can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

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

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

2 Safety Information

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

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

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

2.1 Definitions of signal words and warning symbols

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

Signal words

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

Warning symbols



General hazard



Notice

2.2 Product-specific safety information

Intended use

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

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

Responsibilities of the instrument owner

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

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

Safety notes



WARNING

Death or serious injury due to electric shock

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

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



NOTICE

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

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

3 Design and Function

3.1 Function description

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

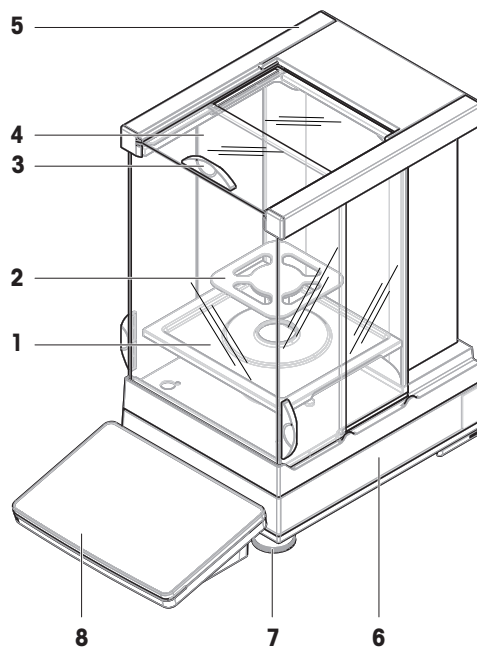
The following features are common to all models of the XPR precision line:

- fully automatic adjustment using internal weights
- built-in level sensor and leveling aid for fast and easy leveling
- 7-inch capacitive color TFT-touch screen
- various methods that can be defined individually
- various routine tests that can be defined individually
- functions to manage user groups and user rights
- history about performed tests and adjustments, as well as changes applied to the balance settings

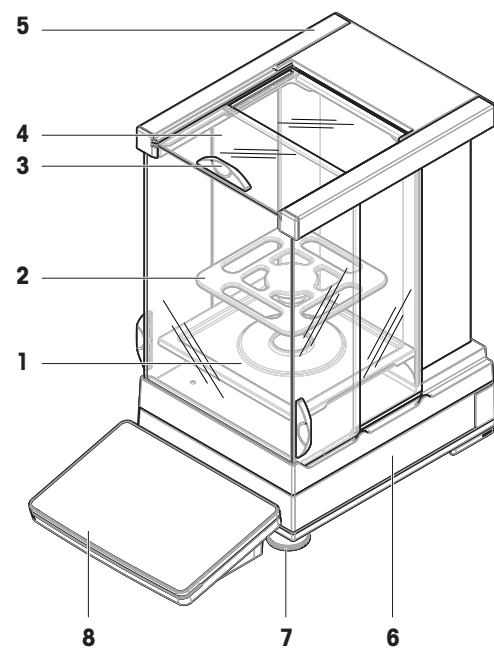
3.2 Overview S weighing platform

3.2.1 Balances with Pro draft shield

0.1 mg



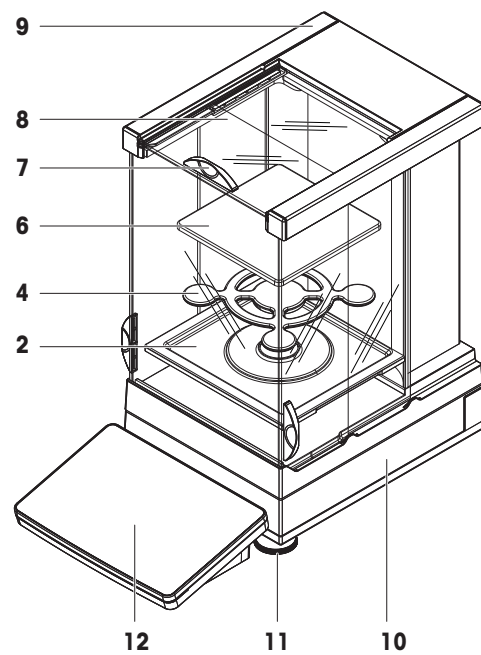
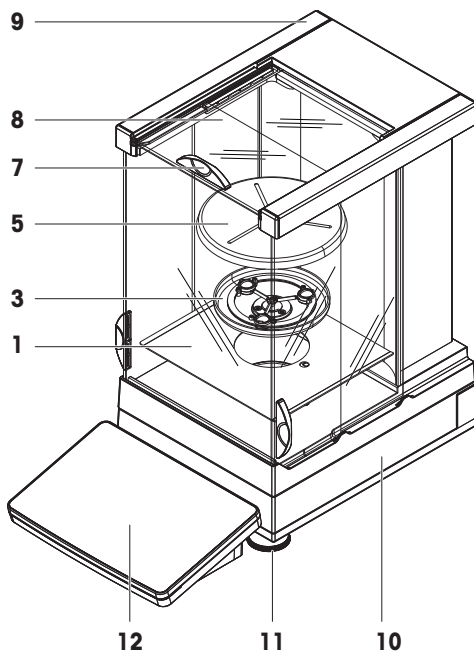
0.5 mg / 1 mg



1	Drip tray	5	Pro draft shield
2	SmartPan Pro weighing pan	6	Weighing platform with protective cover
3	Pro draft shield door handle	7	Leveling foot
4	Pro draft shield door	8	Terminal with protective cover

3.2.2 Comparators with Pro draft shield

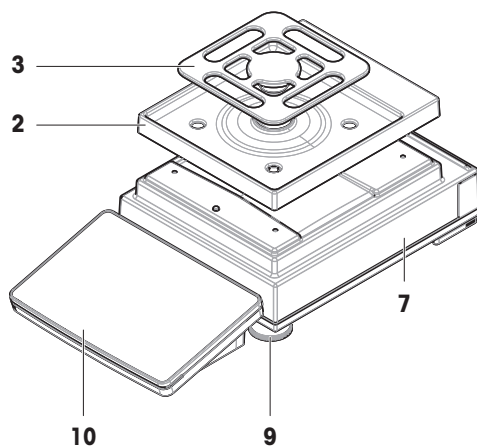
0.1 mg / 1 mg



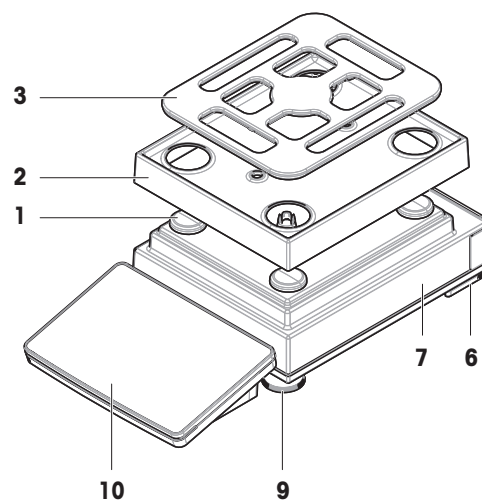
1	Bottom plate	7	Pro draft shield door handle
2	Drip tray	8	Pro draft shield door
3	LevelMatic weighing pan holder	9	Pro draft shield
4	SmartPan weighing pan	10	Weighing platform with protective cover
5	LevelMatic weighing pan	11	Leveling foot
6	Weighing pan	12	Terminal with protective cover

3.2.3 Balances without Pro draft shield

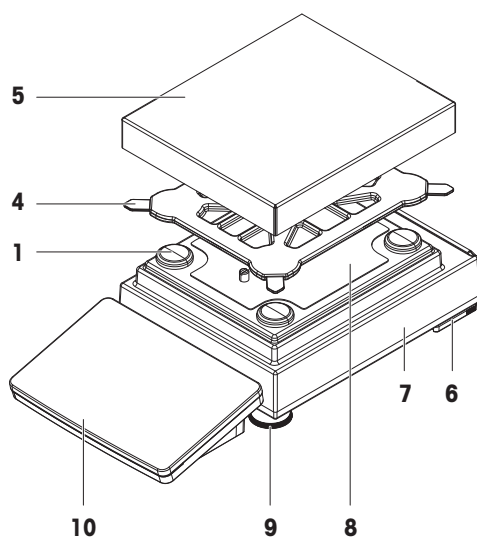
1 mg



5 mg / 10 mg

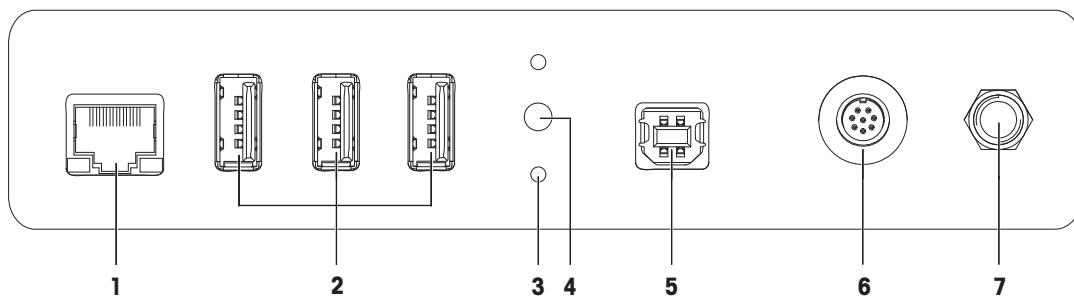


100 mg



1	Weighing pan support cap	6	Safety foot
2	Drip tray	7	Weighing platform with protective cover
3	SmartPan Pro 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

3.2.4 Interface board

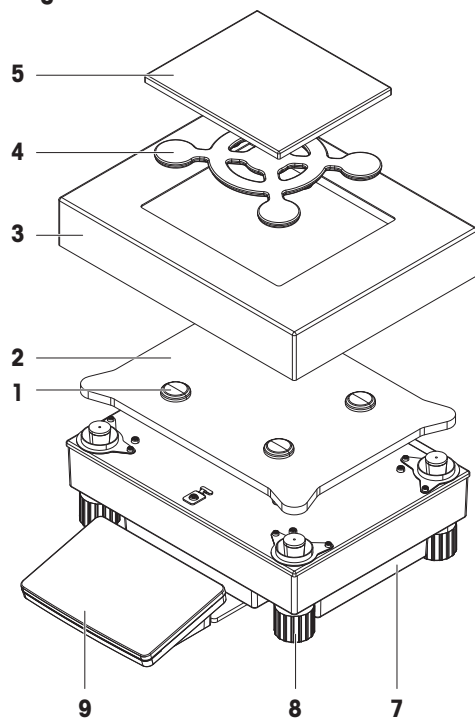


1	Ethernet port	5	USB-B port (to host)
2	USB-A ports (to device)	6	Socket for terminal cable
3	Fixations for optional terminal stand	7	Socket for AC/DC adapter
4	Service seal		

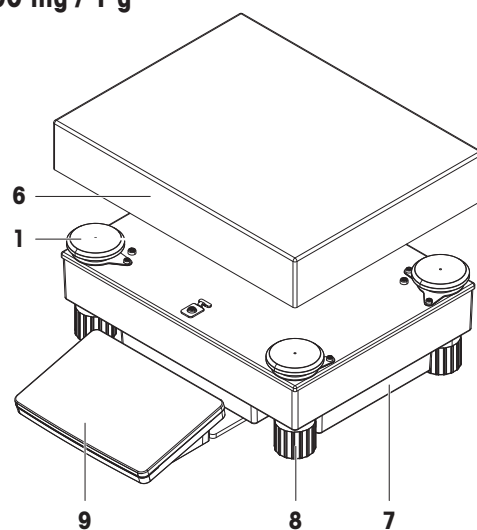
3.3 Overview L weighing platform

3.3.1 Balances

10 mg



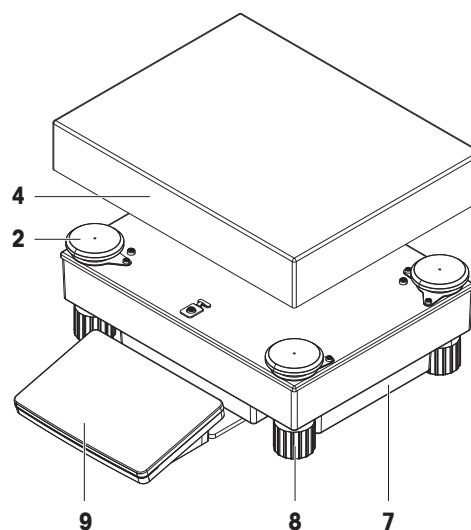
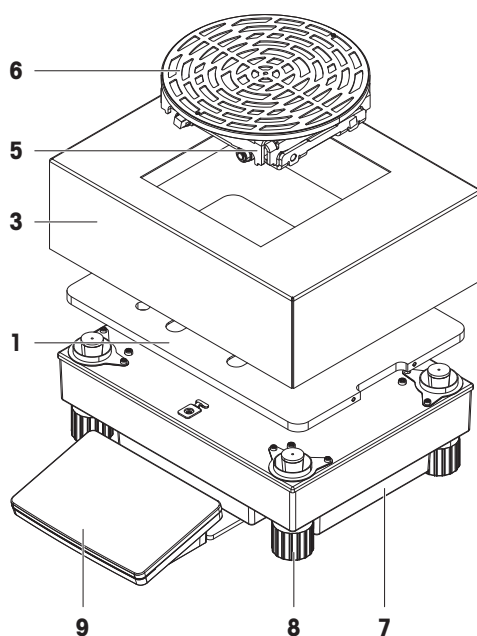
100 mg / 1 g



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		

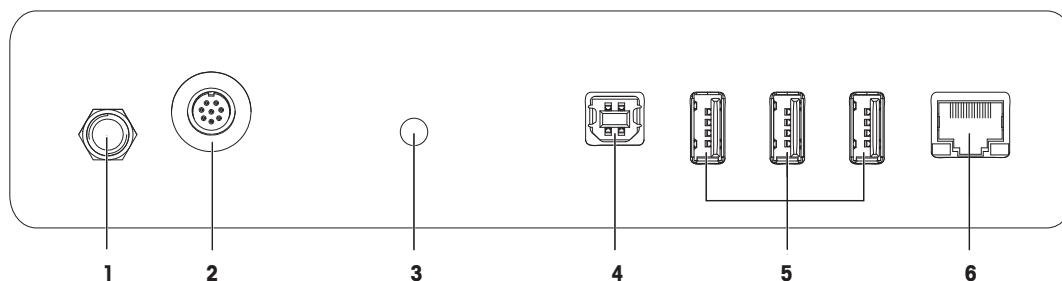
3.3.2 Comparators

1 mg / 5 mg / 10 mg



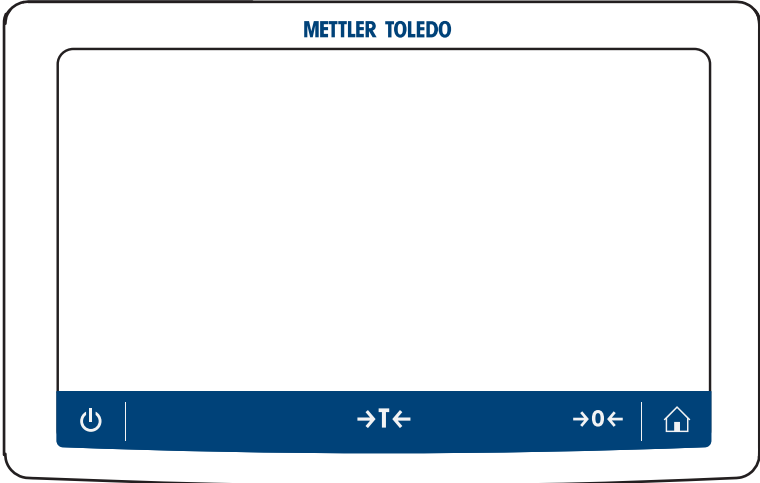
1	Adapter plate with LevelMatic base plate	6	LevelMatic weighing pan
2	Weighing pan support cap	7	Weighing platform
3	Draft shield element	8	Leveling foot
4	Weighing pan	9	Terminal with protective cover
5	LevelMatic weighing pan holder		

3.3.3 Interface board



1	Socket for AC/DC adapter	4	USB-B port (to host)
2	Socket for terminal cable	5	USB-A ports (to device)
3	Service seal	6	Ethernet port

3.4 Overview terminal

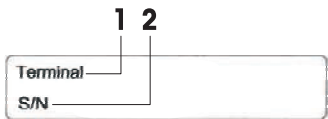


	Name	Description
	Standby	By tapping  , the balance is not completely switched off but goes into standby mode. To switch the balance completely off, it must be unplugged from the power supply. Note Do not disconnect the balance from the power supply unless the balance is not used for an extended period of time. After switching on the instrument, it must warm up before giving accurate results.
	Tare	Tares the balance. This function is used when the weighing process involves containers. After taring the balance, the screen shows <i>Net</i> which indicates that all displayed weights are net.
	Zero	Zeroes the balance. The balance must always be zeroed before starting the weighing process. After zeroing, the balance sets a new zero point.
	Home	To return from any menu level to the main weighing screen.

3.5 Overview type label

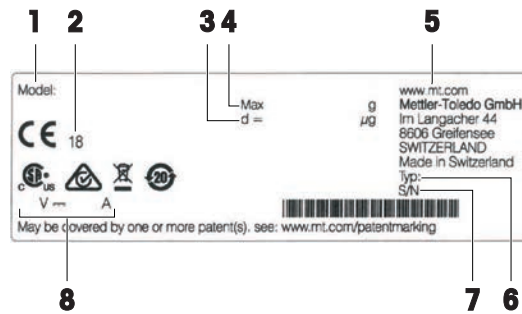
The information on the type label helps to identify the balance and terminal.

Type label of the terminal



1. Terminal type
2. Terminal serial number

Type label of the balance

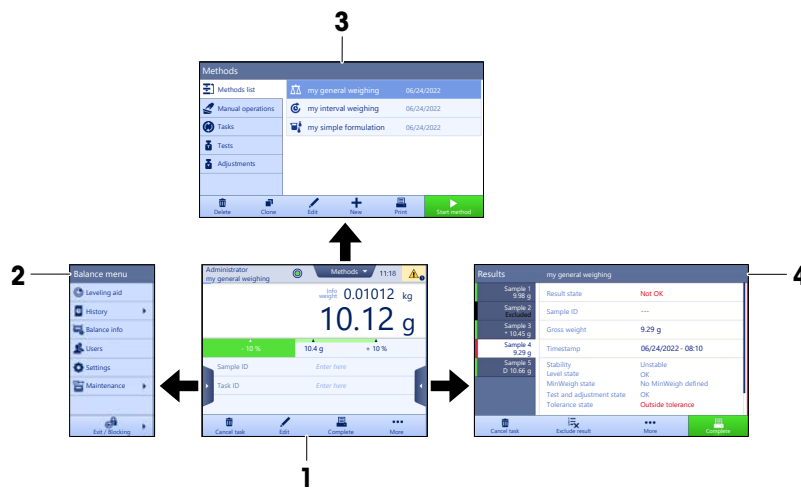


1. Balance model
2. Year of manufacture
3. Readability
4. Maximum capacity
5. Manufacturer
6. Balance type
7. Balance serial number
8. Power consumption

3.6 User interface

3.6.1 Main sections at a glance

The main weighing screen (1) is the central navigation point where all the menus and settings can be found. The **Balance menu** (2), **Methods** (3) and **Results** (4) open when tapping the tabs along the sides of the main weighing screen.



See also

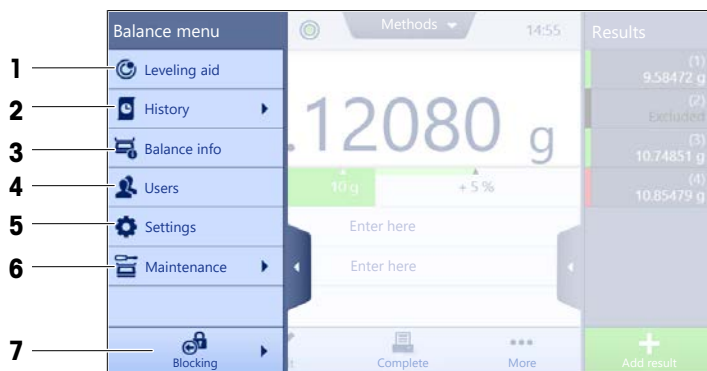
- 🔗 Main weighing screen ▶ Page 24
- 🔗 Panel "Balance menu" ▶ Page 25
- 🔗 Panel "Methods" ▶ Page 25
- 🔗 Panel "Results" ▶ Page 26

3.6.2 Main weighing screen



	Name	Description
1	User name	Shows the name of the current user.
2	Weighing value field	Shows the current weighing value.
3	Level indicator	Indicates if the balance is leveled (green) or not (red).
4	Methods menu	Accesses the user-defined list of methods, tests, and alignments.
5	Info weight	Shows the current weighing value in another unit.
6	Warning and error message area	Shows current warning and/or error messages.
7	Results list	Shows the weighing results saved for this task.
8	Sample status OK	Result status indicator green: indicates that the result fulfills a set of criteria. For example: - The balance is in level. - The internal adjustment was performed and ok. - The weighing result is within the defined tolerance range (only if tolerance is defined).
9	Sample status Excluded	Result status indicator black: indicates that the result was excluded from the Results list .
10	Sample status Not OK	Result status indicator red: indicates that the result criteria are not fulfilled, e.g., "The weighing result was out of the defined tolerances".
11	Button Add result	Adds the result to the Results list . Depending on the selected method, the button can have different functions.
12	Action bar	Contains actions referring to the current task.
13	Balance menu	Accesses the balance properties.
14	Method information area	Contains information about the sample, method or task IDs.
15	SmartTrac	Used as a weighing aid to define a target weight with upper and lower tolerances.
16	Weighing value area	Shows the results of the current weighing process.
17	Method name	Shows the name of the current method.

3.6.3 Panel "Balance menu"



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

3.6.4 Panel "Methods"



	Name	Description
1	Methods list	Lists the methods already defined by the user. Methods can be created, edited, cloned, started, or deleted.
2	Manual operations	For automated weighing, this menu shows operations that can be performed manually. Depending on the available hardware, this can include: Manage dosing head data
3	Tasks	A method/task can be started and then a task is associated with this method. There can be up to one task for each method.
4	Tests	Lists the tests already defined by the user. - Sensitivity tests - Repeatability tests - Eccentricity tests Routine tests can be created, edited, started, or deleted. A list of the tests previously performed is available in the History .

	Name	Description
5	Adjustments	Shows the currently selected internal or external adjustment. The adjustment can be edited or started. A list of the adjustments previously performed is available in the History .

See also

[History](#) ► Page 94

3.6.5 Panel "Results"



	Name	Description
1	Result state	Shows the state of the weighing process.
2	Sample ID	Shows the Sample ID of the weighing.
3	Gross weight	Shows the gross weight. D : indicates that the value was unstable. This might occur when the Weighing mode is set to Immediate . *: indicates that the value was calculated. This might occur, for example, when the Weighing mode is set to Dynamic or the Tare Mode is set to Preset tare .
4	Timestamp	Shows the individual timestamp of each weighing item.
5	Balance status	Shows stability, level state of the balance, minimum weight, tolerance state and test and adjustment state.
6	Complete	Opens the dialog Complete task . • Print task label manually • Print results manually • Export results manually
7	More	Opens the dialog More . • Start adjustment • Change display unit • Configure tare • Configure zero • Save as method (itemized) (only available for methods with the option Weighing items)
8	Exclude result	Excludes the current result from the Results list . A comment can be added to the excluded result, e.g., to describe the reason of the exclusion. Depending on the format of the results printout, the excluded result can be printed or not.

	Name	Description
9	Cancel task	Cancels the current running task.

3.6.6 Icons and symbols

3.6.6.1 System status icons

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

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

3.6.6.2 Weighing status icons

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

Icon	Name	Description
	Stability indicator	When the stability indicator appears, the balance is not stable. Make sure that the balance is placed at an adequate location. Information about the adequate location can be found in the section Selecting the location.
Net	Net indicator	Appears when the tare key has been pressed and the tare weight has been subtracted.
	Calculated value	The current weight value is calculated. This symbol only appears in the weighing value area when a container has been used with the function Preset tare .
	Minimum weight violation	The current weight value is smaller than the defined minimum weight. Make sure that the weight is larger than the minimum weight.
	Balance invalid	The current balance configuration is invalid or quality criteria have not been fulfilled according to the GWP approved definition.
	Weight not ready	The current weight measurement is not ready according to the GWP approved definition. This can be caused by an overload, an underload, or a minimum weight violation.
	Weight ready	The current weight measurement is ready according to the GWP approved definition. It can be added to the Results list .
	External ionizer discharging	The external ionizer is currently discharging.

3.6.6.3 Process status icons

The status of the processes running on the balance is indicated by a small icon on the bottom right corner of the icon of the associated process. This applies to **Tasks**, **Tests**, and **Adjustments**.

Icon	Name	Description
	Running	The process is currently running.
	Paused	The process is paused.
	Scheduled	The process is scheduled.
	Information	Information is available about the process, e.g., a reminder.
	Overdue	The process is overdue.

4 Installation and Putting into Operation

4.1 Selecting the location

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

Requirements of the location

Place indoors on stable table

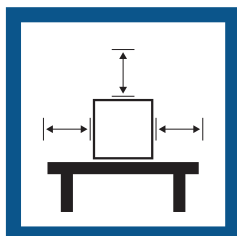
Ensure sufficient spacing

Level the instrument

Provide adequate lighting



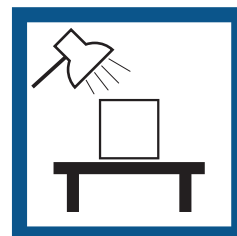
Avoid direct sunlight



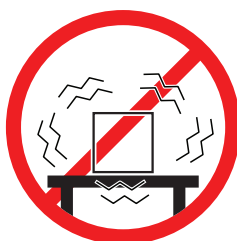
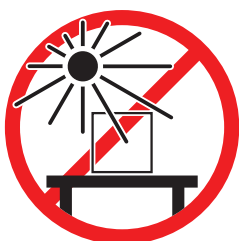
Avoid vibrations



Avoid strong drafts



Avoid temperature fluctuations



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

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

4.2 Unpacking the balance

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

METTLER TOLEDO recommends retaining the original box with its packaging elements. Use the packaging elements to store and to transport the balance.

4.3 Scope of delivery

4.3.1 Balances with S weighing platform

Components	0.1 mg with Pro draft shield	0.5 mg / 1 mg with Pro draft shield	1 mg without Pro draft shield	5 mg / 10 mg	100 mg
Weighing platform with protective cover	✓	✓	✓	✓	✓
Terminal with protective cover	✓	✓	✓	✓	✓
Terminal holder	✓	✓	✓	✓	✓
Terminal cable (pre-assembled)	✓	✓	✓	✓	✓
Pro draft shield	✓	✓	—	—	—
Weighing pan 128 × 128 mm	—	✓ ¹	—	—	—
Weighing pan 172 × 205 mm	—	—	—	✓ ¹	—
Weighing pan 193 × 223 mm	—	—	—	—	✓
SmartPan Pro / SmartPan weighing pan 90 × 90 mm	✓ ²	—	—	—	—
SmartPan Pro / SmartPan weighing pan 127 × 127 mm	—	✓ ¹	✓ ²	—	—
SmartPan Pro / SmartPan weighing pan 170 × 203 mm	—	—	—	✓ ¹	—
Weighing pan support	—	—	—	—	✓
Drip tray	✓	✓	✓	✓	—
Seal for Pro draft shield	✓	—	—	—	—
Weighing hook for below-the-balance weighing	✓	✓	✓	✓	✓
AC/DC adapter	✓	✓	✓	✓	✓
Power cable (country-specific)	✓	✓	✓	✓	✓
User Manual	✓	✓	✓	✓	✓
Production certificate	✓	✓	✓	✓	✓
Declaration of Conformity	✓	✓	✓	✓	✓

1) Depending on the status of the approval in your country, your product is delivered either with a SmartPan and a flat weighing pan or with a SmartPan Pro.

2) Depending on the status of the approval in your country, your product is delivered either with a SmartPan or with a SmartPan Pro.

4.3.2 Comparators with S weighing platform

Components	0.1 mg	1 mg
Weighing platform with protective cover	✓	✓
Terminal with protective cover	✓	✓
Terminal cable (pre-assembled)	✓	✓
Pro draft shield (not for XPR10003SC)	✓	✓
Draft shield XP W12 (only for XPR10003SC)	–	✓
SmartPan weighing pan 90 × 90 mm	✓	–
SmartPan weighing pan 127 × 127 mm	–	✓
LevelMatic weighing pan ø 130 mm (not for XPR2003SC)	✓	✓
Bottom plate	✓	✓
Seal for Pro draft shield	✓	–
Weighing hook for below-the-balance weighing	✓	✓
AC/DC adapter	✓	✓
Power cable (country-specific)	✓	✓
User Manual	✓	✓
Mass calibration software MC Link	✓	✓
Production certificate	✓	✓
Declaration of Conformity	✓	✓

4.3.3 Balances with L weighing platform

Components	10 mg	100 mg / 1 g
Weighing platform	✓	✓
Terminal with protective cover	✓	✓
Terminal holder	✓	✓
Terminal cable	✓	✓
Draft shield element	✓	–
Weighing pan 172 × 205 mm	✓	–
Weighing pan 280 × 360 mm	–	✓
SmartPan weighing pan 170 × 203 mm	✓	–
AC/DC adapter	✓	✓
Power cable (country-specific)	✓	✓
User Manual	✓	✓
Production certificate	✓	✓
Declaration of Conformity	✓	✓

4.3.4 Comparators with L weighing platform

Components	1 mg	5 mg	10 mg
Weighing platform	✓	✓	✓
Terminal with protective cover	✓	✓	✓
Terminal holder (not for XPR64002LC-T)	✓	✓	✓
Terminal 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)	✓	✓	–
Fixed weighing pan ø 220 mm (only for XPR64002LC-T)	–	–	✓
AC/DC adapter	✓	✓	✓
Power cable (country-specific)	✓	✓	✓
Transport case (only for XPR64002LC-T)	–	–	✓
User Manual	✓	✓	✓
Mass calibration software MC Link	✓	✓	✓
Production certificate	✓	✓	✓
Declaration of Conformity	✓	✓	✓

4.4 Installation

4.4.1 Balances and comparators with S weighing platform

4.4.1.1 Attaching the terminal to the weighing platform

The terminal is usually placed in front of the weighing platform on the terminal holder. Alternatively, the terminal can be placed next to the weighing platform, or attached to an additional terminal stand.

Note

Comparators with S weighing platform are used without a terminal holder.



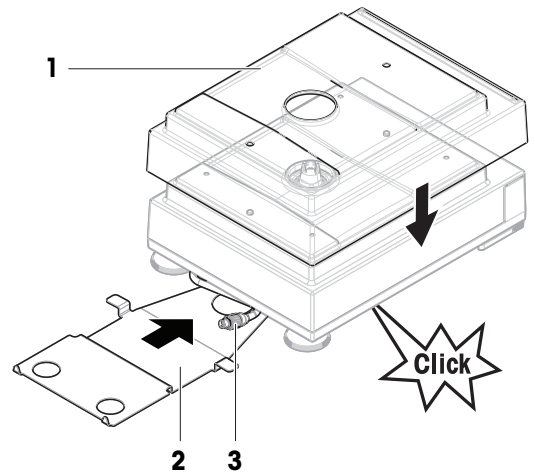
NOTICE

Damage to the balance

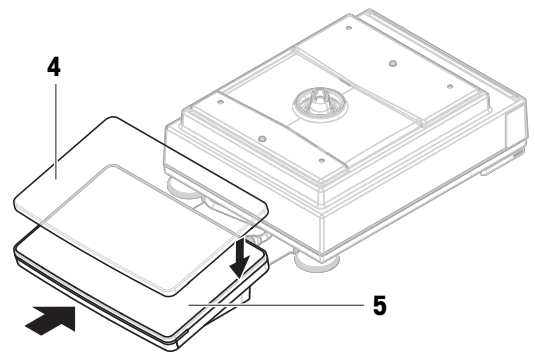
The weighing platform and the terminal are not safely fixed by the terminal holder and may fall off when carrying.

- 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 Place the protection cover (1) on the weighing platform.
- 3 Position the terminal holder (2) in front of the weighing platform. The plug of the pre-mounted terminal cable (3) must lie between the terminal holder (2) and the weighing platform.
- 4 Push the terminal holder (2) towards the weighing platform until the terminal holder locks under the weighing platform.
- 5 Connect the terminal cable to the terminal.

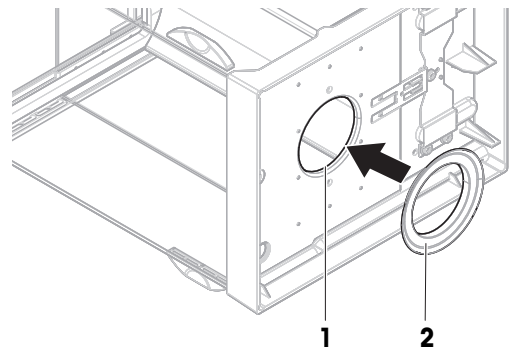


- 6 Place the protection cover (4) on the terminal (5).
- 7 Place the terminal on top of the terminal holder.
- 8 Push the terminal towards the weighing platform until the terminal locks into the terminal holder.

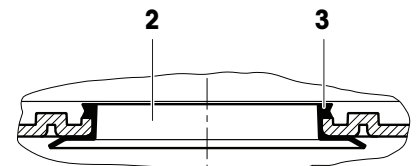


4.4.1.2 Assembling the Pro draft shield for 0.1 mg balances and comparators

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

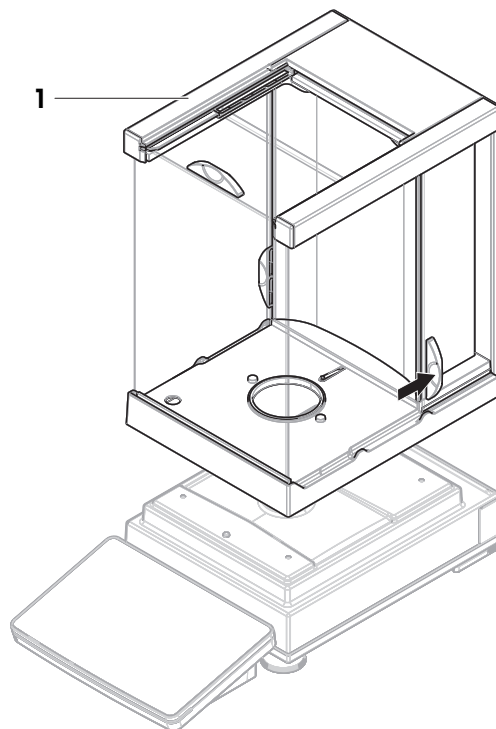


- 3 Fix the seal in the opening of the Pro draft shield. The seal (2) must be properly fixed into the opening. The upper edge (3) of the seal must lay all around the bottom of the Pro draft shield.
- 4 Turn the Pro draft shield carefully back into vertical position.



4.4.1.3 Assembling the Pro draft shield on the weighing platform

- 1 Open the Pro draft shield with the door handles on both sides.
- 2 Hold the Pro draft shield on the top bars (1) on both sides and place it on top of the weighing platform.

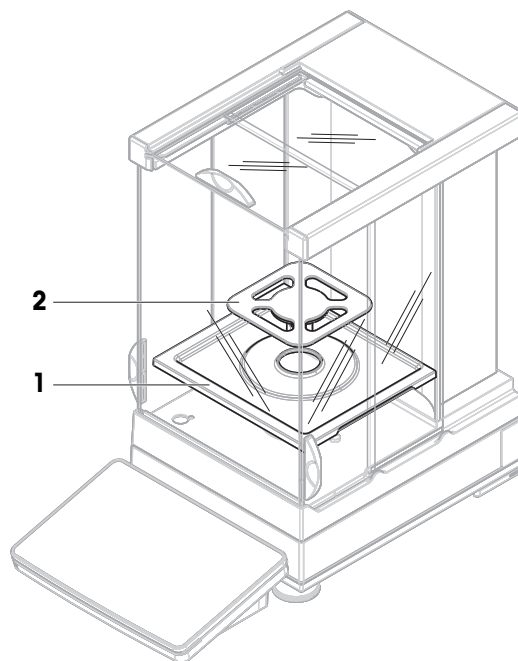


4.4.1.4 Assembling balances 0.1 mg with SmartPan Pro weighing pan

Note

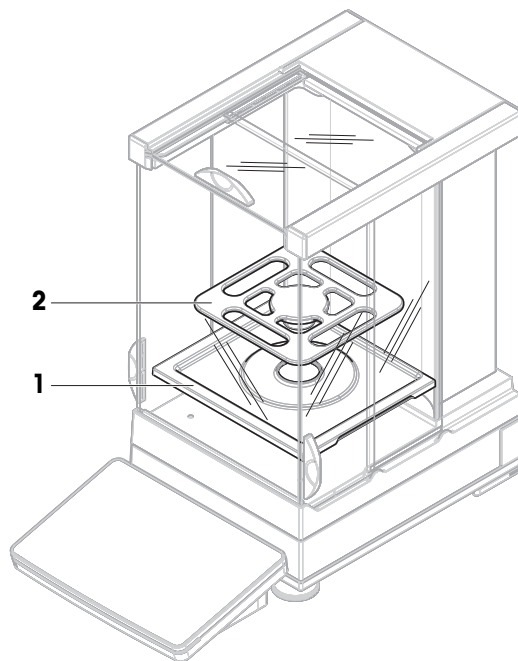
The 0.1 mg balances with Pro draft shield are equipped with a seal. The aim of the seal is to isolate the weighing chamber from draft. The seal must always be correctly installed at the bottom of the Pro draft shield, as described in [Assembling the Pro draft shield for 0.1 mg balances and comparators ► Page 33].

- The seal is installed on the Pro draft shield.
 - The Pro draft shield is installed on the weighing platform.
- 1 Place the drip tray (1) into the Pro draft shield.
 - 2 Place the SmartPan Pro weighing pan (2) on top of the drip tray (1).



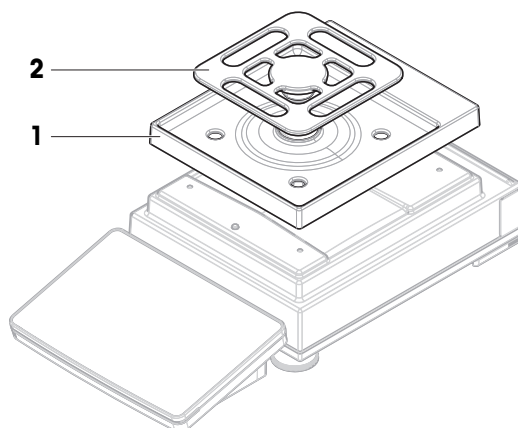
4.4.1.5 Assembling balances 1 mg with Pro draft shield

- The Pro draft shield is installed on the weighing platform.
- 1 Place the drip tray (1) into the Pro draft shield.
- 2 Place the SmartPan Pro weighing pan (2) on top of the drip tray (1).



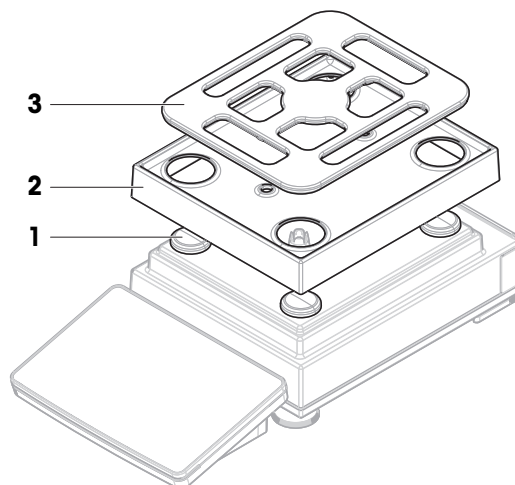
4.4.1.6 Assembling balances 1 mg with SmartPan Pro weighing pan

- 1 Place the drip tray (1) on top of the weighing platform.
- 2 Place the SmartPan Pro weighing pan (2) on top of the drip tray (1).



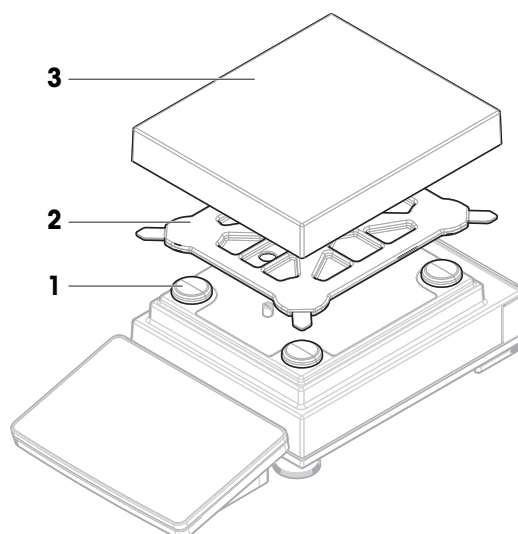
4.4.1.7 Assembling balances 5 mg and 10 mg with SmartPan weighing pan

- 1 Place the four weighing pan support caps (1) on top of the weighing platform.
- 2 Place the drip tray (2) on top of the weighing platform.
- 3 Place the SmartPan Pro weighing pan (3) on top of the weighing pan support caps (1).



4.4.1.8 Assembling balances 100 mg

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

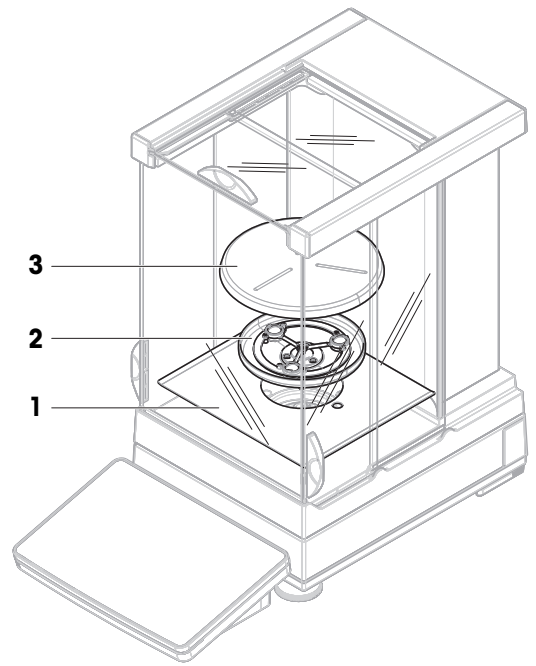


4.4.1.9 Assembling comparators 0.1 mg and 1 mg with LevelMatic weighing pan

Note

The 0.1 mg balances with Pro draft shield are equipped with a seal. The aim of the seal is to isolate the weighing chamber from draft. The seal must always be correctly installed at the bottom of the Pro draft shield, as described in [Assembling the Pro draft shield for 0.1 mg balances and comparators ► Page 33].

- The seal is installed on the Pro draft shield.
 - The Pro draft shield is installed on the weighing platform.
- 1 Place the bottom plate (**1**) into the Pro draft shield.
 - 2 Place the LevelMatic holder (**2**) on top of the bottom plate (**1**).
 - 3 Place the LevelMatic weighing pan (**3**) on top of the LevelMatic weighing pan holder (**2**).



4.4.2 Balances and comparators with L weighing platform

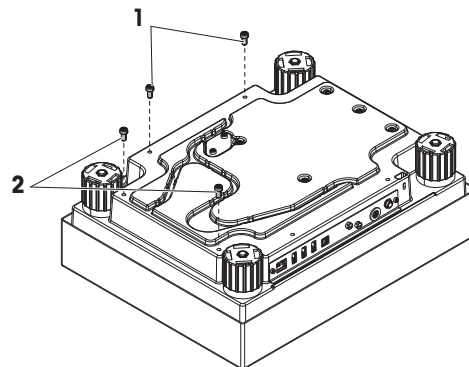
4.4.2.1 Attaching the terminal to the weighing platform

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

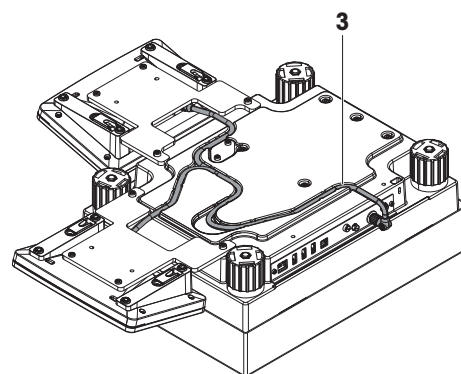
Note

On L weighing platforms, the terminal holder can be used with both balances and comparators.

- 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 holder to the long side or to the short side of the weighing platform. Fix the terminal holder with the screws from the weighing platform.



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



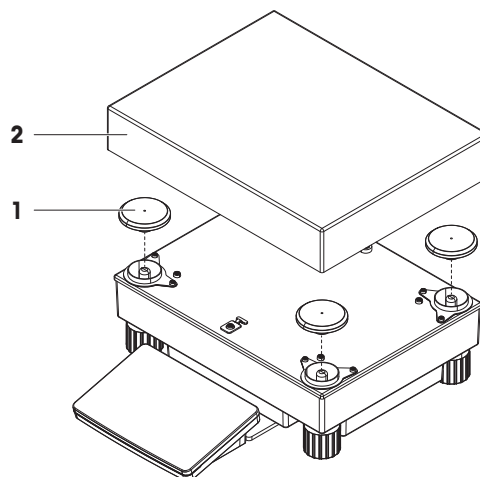
Note

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.

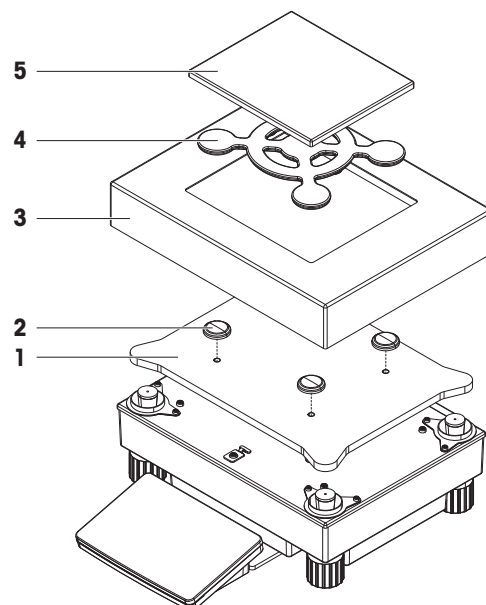
4.4.2.2 Assembling balances 100 mg and 1 g

- 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).



4.4.2.3 Assembling balances 10 mg with SmartPan weighing pan

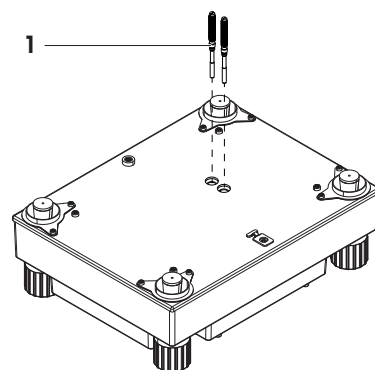
- 1 Place the adapter plate (1) on top of the weighing platform.
- 2 Place the weighing pan support caps (2) on top of the adapter plate.
- 3 Place the draft shield element (3) on top of the adapter plate (1).
- 4 Place the SmartPan weighing pan (4) on top of the weighing pan support caps (2).
- 5 Place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



4.4.2.4 Removing and installing the transport safety screws (only for comparators)

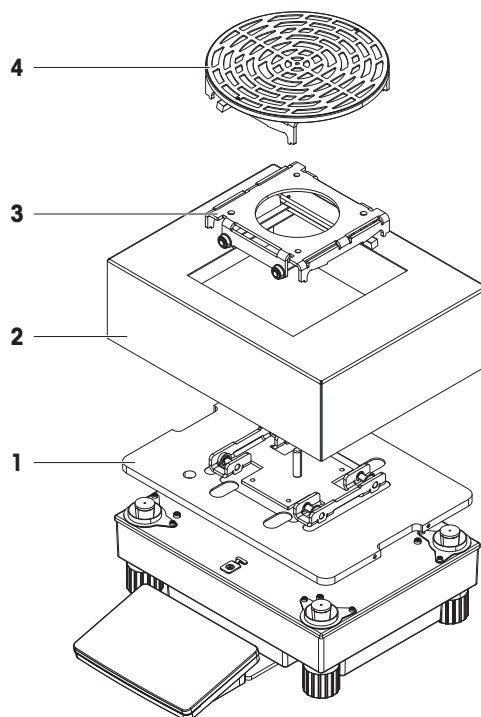
Transport safety screws are used to prevent damaging the load cell during transport. Before installing the weighing pan, the transport safety screws on top of the weighing platform must be removed. Keep the transport safety screws for transporting the comparator.

- 1 Unscrew and remove the transport safety screws (1) from the top of the weighing platform.
- 2 Close the openings with the enclosed plastic covers.
- 3 Before transporting the comparator, reinstall the transport safety screws.



4.4.2.5 Assembling 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).



4.4.2.6 Assembling the comparator XPR64002LC-T



For instructions on how to assemble the comparator model XPR64002LC-T, refer to the Installation Instructions delivered with the comparator.

4.5 Putting into operation

4.5.1 Connecting the balance



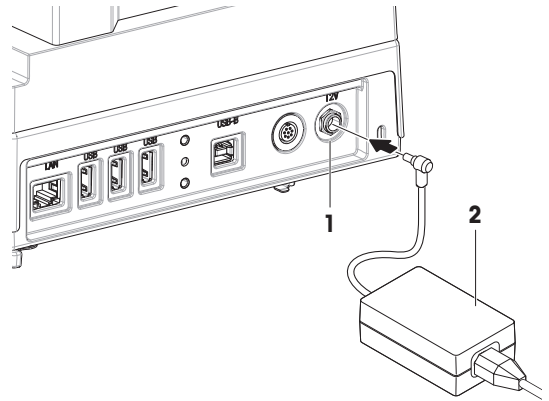
WARNING

Death or serious injury due to electric shock

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

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

- 1 Install the cables in such a way that they cannot be damaged or interfere with operation.
 - 2 Insert the plug of the AC/DC adapter (2) into the power inlet of the instrument (1).
 - 3 Secure the plug by firmly tightening the knurled nut.
 - 4 Insert the plug of the power cable into a grounded power outlet that is easily accessible.
- ➔ The balance automatically switches on.



Note

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

See also

🔗 General data ▶ Page 188

4.5.2 Switching on the balance

When connected to the power supply, the balance automatically switches on.

EULA (End User License Agreement)

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

- 1 Read the conditions.
 - 2 Tap **I accept the terms in the license agreement.** and confirm with **✓ OK.**
- ➔ The main weighing screen appears.

Acclimatization and warm up

Before the balance gives reliable results, it must:

- acclimatize to the room temperature
- warm up by being connected to the power supply

The acclimatization time and warm-up time for balances and comparators are available in "General data".

Note

When the balance is exiting standby, it is ready immediately.

See also

🔗 General data ▶ Page 188

🔗 Entering / Exiting standby mode ▶ Page 42

4.5.3 Logging in

If the user management is activated, you have to log in with your **User name** before performing a weighing. When the balance starts, the login dialog opens automatically.

- 1 Select a user or tap **User name**.
 - 2 Tap **Password**.
- ➔ The input dialog opens.
- 3 Enter your password and tap **✓ OK**.
 - 4 Tap **➔ Login**.
- ➔ The login dialog closes and you are logged in. Your **User name** is shown on the main screen.

The user management can be activated through the balance menu:

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** > 🏠 > **Balance** > ⚙ **General** > **User management**

See also

- 🔗 [Activating the user management](#) ► Page 87
- 🔗 [Users](#) ► Page 97

4.5.4 Leveling the balance

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

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

- 1 Tap ► **Level the balance**.
 - ➔ The **Leveling aid** opens.
- 2 Follow the instructions from the wizard.

The leveling aid can also be accessed through the **Balance menu**:

≡ **Navigation:** ► **Balance menu** > 🕒 **Leveling aid**

4.5.5 Performing an internal adjustment

≡ **Navigation:** ▼ **Methods** > ⚙ **Adjustments**

- The adjustment **Strategy** is set to **Internal adjustment**.
- 1 Open the **Methods** section, tap ⚙ **Adjustments**, select the adjustment, and tap ► **Start**
 - or -
 - from the main weighing screen, tap ⋮ **More** and tap **Start adjustment**.
 - ➔ **Internal adjustment** is being executed.
 - ➔ When the adjustment has been completed, an overview of the adjustment results appears.
- 2 Tap 🖨 **Print** if you want to print the results.
- 3 Tap ✓ **Finish adjustment**.
 - ➔ The balance is ready.

4.5.6 Entering / Exiting standby mode

- 1 To enter standby mode, hold 🔌.
 - ➔ The display is dark. The balance is still switched on.
- 2 To exit standby mode, press 🔌.
 - ➔ The display is turned on.

4.5.7 Switching off the balance

To completely switch off the balance, it must be disconnected from the power supply. By holding 🔌, the balance goes only into standby mode.

Note

When the balance was completely switched off for some time, it must warm up before it can be used.

See also

- 🔗 [Switching on the balance](#) ► Page 41

4.6 Performing a simple weighing

4.6.1 Zeroing the balance

- 1 Open the draft shield, if applicable.
- 2 Clear the weighing pan.

- 3 Close the draft shield, if applicable.
- 4 Press **→0←** to zero the balance.
- ➔ The balance is zeroed.

4.6.2 Taring the balance

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

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

4.6.3 Performing a weighing

- 1 Open the draft shield, if applicable.
- 2 Place the weighing object into the sample vessel.
- 3 Tap **+ Add result** if you want to report the weighing result.
- ➔ The result is added to the **Results list**.

4.6.4 Completing the weighing

- 1 To save the **Results list**, tap **Complete**.
 - ➔ The window **Complete task** opens.
- 2 Select an option to save or print the **Results list**.
 - ➔ The respective dialog opens.
- 3 Follow the instructions from the wizard.
- 4 Tap **✓ Complete**.
- ➔ The **Results list** is saved/printed and then cleared.

4.7 Transporting, packing and storing



NOTICE

Damage to the draft shield, terminal or additional terminal stand

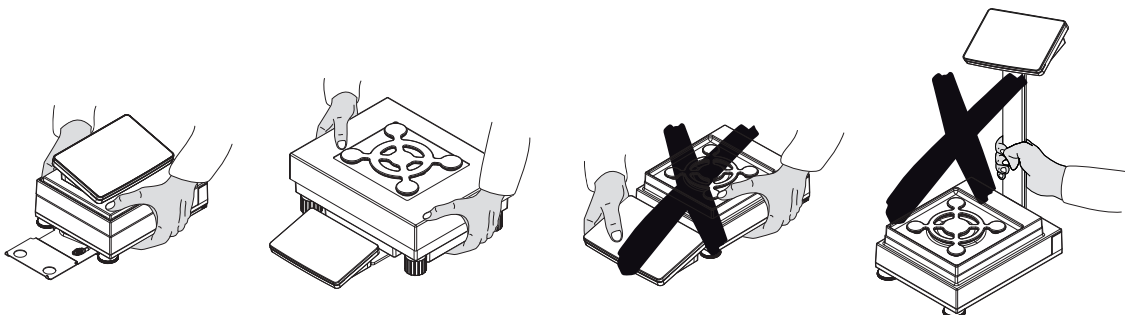
Do not hold the balance only by the glass draft shield, by the terminal or by the terminal stand when carrying the balance.

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

4.7.1 Transporting the balance over short distances

- 1 Disconnect the balance from the AC/DC adapter.
- 2 Unplug all interface cables if necessary.
- 3 Remove the terminal from the terminal holder and place the terminal on top of the weighing platform (only for S weighing platform).

- 4 Hold the weighing platform with both hands and carry the balance in horizontal position to the target location. Consider the requirements of the location.



See also

- 🔗 Selecting the location ▶ Page 29
- 🔗 Leveling the balance ▶ Page 42
- 🔗 Performing an internal adjustment ▶ Page 42

4.7.2 Transporting the balance over long distances

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



NOTICE

Damage to the comparator

Always install the transport safety screws on top of the weighing platform when transporting the comparator over long distances.

See also

- 🔗 Removing and installing the transport safety screws (only for comparators) ▶ Page 39

4.7.3 Packing and storing

Packing the balance

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

Storing the balance

Only store the balance under the following conditions:

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

Note

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

See also

- 🔗 Technical Data ▶ Page 188

4.8 Weighing below the balance

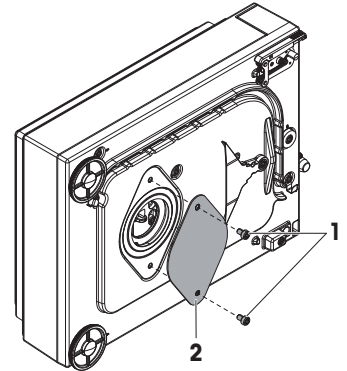
All models with S weighing platform are equipped with a weighing hook for below-the-balance weighing. Models with L weighing platform are not equipped with a weighing hook. The weighing hook for L weighing platforms can be ordered as an accessory.

See also

 Dimensions ► Page 210

4.8.1 S weighing platform

- A weighing table or workbench is available, through which the weighing hook can be accessed.
- 1 Disconnect the balance from the AC/DC adapter.
- 2 Remove all elements from the weighing platform, e.g., draft shield, terminal and weighing pan.
- 3 Turn the weighing platform to its side.
- 4 Remove the screws (1) and remove the weighing hook cover (2).
- 5 Turn the weighing platform back on its feet and reinstall all components.
- ➔ The weighing hook is accessible and can be used for below-the-balance weighing.



4.8.2 L weighing platform

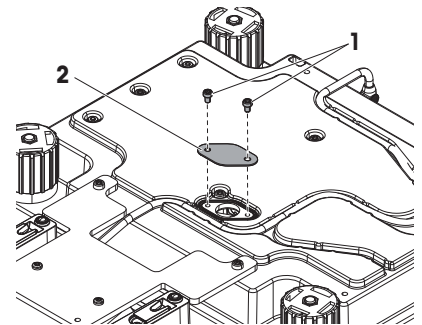


NOTICE

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.

- A weighing table or workbench is available, through which the weighing hook can be accessed.
- 1 Disconnect the balance from the AC/DC adapter.
- 2 Remove all elements from the weighing platform, e.g., draft shield, terminal and weighing pan.
- 3 Turn the weighing platform upside down.
- 4 Remove the screws (1) and remove the weighing hook cover (2).
- 5 Install the weighing hook.
- 6 Turn the weighing platform back on its feet and reinstall all components.
- ➔ The weighing hook is accessible and can be used for below-the-balance weighing.

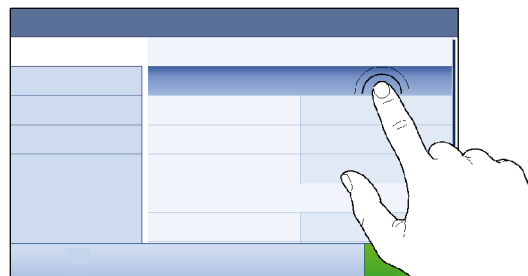


5 Operation

5.1 Touch screen

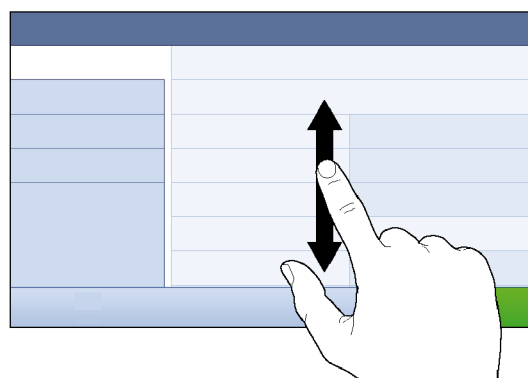
5.1.1 Selecting or activating an item

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



5.1.2 Scrolling

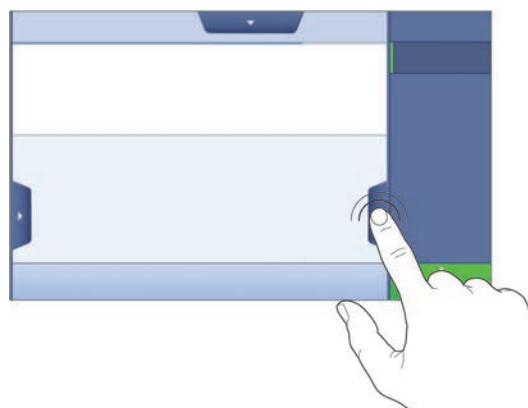
- Move the list up/down.



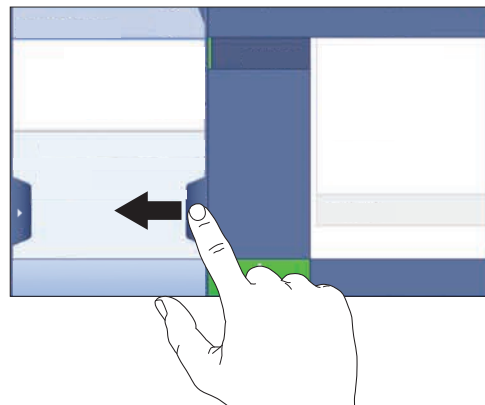
5.1.3 Using the fly-in panels

Three fly-in panels are placed along the sides of the main weighing screen.

- 1 Place the finger on one tab along one side of the screen, e.g., ◀.



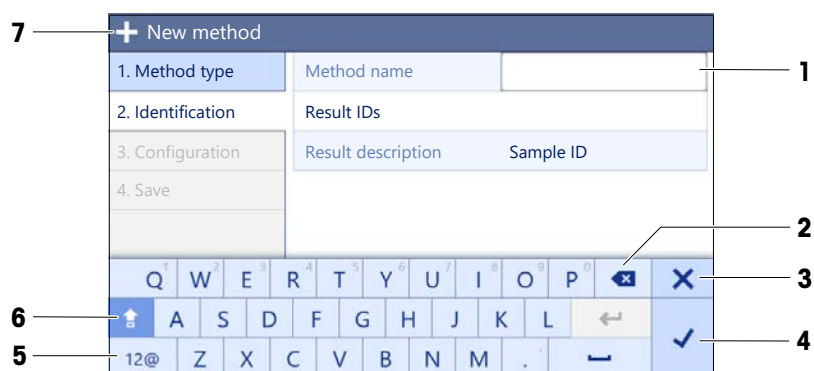
- Keep the finger on the tab and slide it in the direction towards which the arrow is pointing.



Note

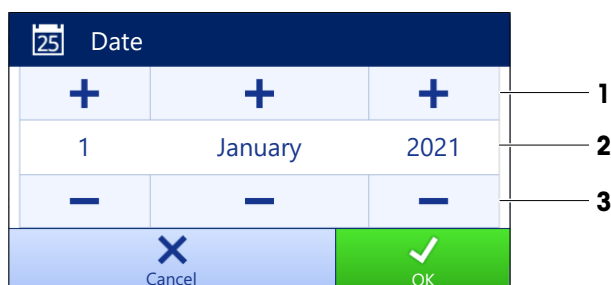
The fly-in panels can also be opened or closed by tapping the associated tab.

5.1.4 Entering characters and numbers



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

5.1.5 Changing the date and time



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

 Note

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

See also

 [Date / Time / Language / Format ▶ Page 104](#)

5.2 Methods

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

To support you while configuring new methods, a configuration wizard leads you through the whole process. The changes performed to a method are recorded in the change history (if activated).

5.2.1 Methods overview

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

≡ **Navigation:** ▼ **Methods** > ≡ **Methods list**

The following methods are available:

-  **General weighing** (see [Method "General weighing" ▶ Page 48])
-  **Simple formulation** (see [Method "Simple formulation" ▶ Page 50])
-  **Interval weighing** (see [Method "Interval weighing" ▶ Page 51])
-  **Titration** (see [Method "Titration" ▶ Page 53])
-  **Density determination** (see [Method "Density determination" ▶ Page 54])
-  **SQC** (see [Method "SQC" ▶ Page 56])
-  **Piece Counting** (see [Method "Piece Counting" ▶ Page 60])

5.2.2 Method "General weighing"

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

The settings of the weighing item, e.g., target weight and tolerances, can be specified for one or multiple weighing items. Two different methods exist:

- **General weighing:**
 - Select this method if you want to work with a single set of parameters.
- **General weighing (itemized):**
 - Select this method if you want to define the parameters for multiple weighing items. A method with multiple weighing items is particularly useful when the weighing task consists of a series of weighings, each with its own individual parameters, such as target weight, tolerances, etc. For further information, see [Using methods with multiple weighing items (itemized) ▶ Page 63].

Methods		
Methods list	my general weighing	06/24/2022
Manual operations	my interval weighing	06/24/2022
Tasks	my simple formulation	06/24/2022
Tests		
Adjustments		
Delete	Clone	Edit
New	Print	Start method

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

For details about method settings:

See also

Settings: method "General weighing" ▶ Page 111

Using methods with multiple weighing items (itemized) ▶ Page 63

5.2.2.1 Creating a method "General weighing"

≡ **Navigation:** ▼ **Methods** > **Methods list**

- 1 Tap **+ New** in the action bar.
 - ➔ The method wizard opens, starting at **1. Method type**.
- 2 Tap **Method type** and select the method type **General weighing** or **General weighing (itemized)**.
- 3 Tap **→ Next**.
 - ➔ The method wizard opens the section **2. Identification**.
- 4 Define the **Method name** and **Result description** and tap **→ Next**.
 - ➔ The method wizard opens the section **3. Configuration**.
- 5 Select a **Tolerance profile** and tap **→ Next**.
 - ➔ The method wizard opens the section **4. Save**.
 - ➔ If setting up a method with multiple weighing items, the wizard opens the section **4. Weighing items**.
- 6 Select a weighing item from the list and define the **Sample ID**, **Unit**, **Target weight**, **-Tolerance**, and **+Tolerance**.
- 7 To add a weighing item, tap **+ Item** or **Clone**.
- 8 Tap **→ Next**.
 - ➔ The method wizard opens the section **5. Save**.
- 9 Tap **Finish** to save the new method.
 - ➔ The method has been created and appears in the list.

5.2.2.2 Performing a "General weighing"

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

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

- 5 Open the draft shield (if applicable) and place the weighing object in the center of the weighing pan.
- 6 Close the draft shield (if applicable) and wait until the weight stabilizes.
 - ➔ The weighing starts with **Capturing weight...**
- 7 Tap **+ Add result**.
 - ➔ The weighing result is saved to the **Results list**.
- 8 When the weighing process is finished, tap **Complete** in the action bar.
 - ➔ The window **Complete task** opens. The task-specific information can be printed on a label printer, the **Results list** can be printed manually or automatically (depending on the method settings), and the result can be exported to an external storage device.
 - ➔ The task **Piece Counting** was successfully completed.

Note

It is possible to exclude a weighing result from the **Results list**. Open the **Results list**, select a result to exclude, and tap **Exclude result**.

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

5.2.3 Method "Simple formulation"

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

The settings of the weighing item, e.g., target weight and tolerances, can be specified for one or multiple weighing items. Two different methods exist:

- **Simple formulation:**
 - Select this method if you want to weigh a single component in a volumetric flask and have the concentration calculated automatically.
- **Simple formulation (itemized):**
 - Select this method if you want to follow a predefined solution recipe of one or several components. A method with multiple weighing items is particularly useful when the weighing task consists of a series of weighings, each with its own individual parameters, such as target weight, tolerances, etc. For further information, see [Using methods with multiple weighing items (itemized) ▶ Page 63].

Methods		
 Methods list	 my general weighing	06/24/2022
 Manual operations	 my interval weighing	06/24/2022
 Tasks	 my simple formulation	06/24/2022
 Tests		
 Adjustments		
 Delete  Clone  Edit  New  Print  Start method		

For details about method settings:

See also

-  Settings: method "Simple formulation" ▶ Page 122
-  Using methods with multiple weighing items (itemized) ▶ Page 63

5.2.3.1 Creating a method "Simple formulation"

Navigation: ▼ **Methods** >  **Methods list**

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

- ➔ The method wizard opens, starting at **1. Method type**.
- 2 Tap **Method type** and select the method type **Simple formulation** or **Simple formulation (itemized)**.
- 3 Tap ➔ **Next**.
 - ➔ The method wizard opens the section **2. Identification**.
- 4 Define the **Method name** and **Result description** and tap ➔ **Next**.
 - ➔ The method wizard opens the section **3. Configuration**.
- 5 Select the options for **Calculate concentration per component**, **Calculate amount of component** and set a **Tolerance profile**.
- 6 Tap ➔ **Next**.
 - ➔ The method wizard opens the section **4. Save**.
 - ➔ When selected **Simple formulation (itemized)**, the wizard opens the optional creating section **4. Weighing items**.
- 7 Select a weighing item from the list and define the **Sample ID**, **Unit**, **Target weight**, **-Tolerance**, and **+Tolerance**.
 - ➔ The method wizard opens the section **5. Save**.
- 8 Tap ✓ **Finish** to save the new method.
 - ➔ The method has been created and appears in the list.

5.2.3.2 Method "Simple formulation"

This example describes how to perform a **Simple formulation** with two components. It explains the basic functions of the method. Advanced functions such as the calculation of the concentration of a component can be defined in the method settings.

- 1 Open the **Methods** section.
- 2 Select a method from the **Methods list** or define a new method.
- 3 Tap ► **Start method**.
 - ➔ The main weighing screen appears with the selected method.
- 4 Define the target weight and the tolerance limits for the first component.
- 5 Select **Component ID** to define the first component.
- 6 Select **Task ID** to define the whole task.
- 7 Press ➔ **0** ← to zero the balance.
- 8 Open the draft shield (if applicable) and place the weighing object in the center of the weighing pan.
- 9 Press ➔ **T** ← to tare the balance.
- 10 Open the draft shield (if applicable) and place the first component in the sample vessel.
 - ➔ The measurement starts.
- 11 Tap + **Add result**.
 - ➔ The weighing result is saved to the **Results list**.
- 12 Define the target weight and the tolerance limits for the second component.
- 13 Select **Component ID** to define the second component.
- 14 Open the draft shield (if applicable) and place the second component in the sample vessel.
- 15 Tap + **Add result**.
 - ➔ The weighing result is saved to the **Results list**.
- 16 Tap 📄 **Complete** and select if you want to print or export the **Results list**.
 - ➔ The weight task is completed and the balance returns to the main weighing screen.

5.2.4 Method "Interval weighing"

With the method **Interval weighing**, the number of measurements and the time interval for each measurement can be defined.

Methods		
 Methods list	 my general weighing	06/24/2022
 Manual operations	 my interval weighing	06/24/2022
 Tasks	 my simple formulation	06/24/2022
 Tests		
 Adjustments		
 Delete  Clone  Edit  New  Print  Start method		

For details about method settings:

See also

 Settings: method "Interval weighing" ▶ Page 132

5.2.4.1 Creating a method "Interval weighing"

≡ **Navigation:** ▼ **Methods** >  **Methods list**

- 1 Tap **+ New** in the action bar.
 - ➔ The method wizard opens, starting at **1. Method type**.
- 2 Tap **Method type** and select the method type **Interval weighing**.
- 3 Tap **→ Next**.
 - ➔ The method wizard opens the section **2. Identification**.
- 4 Define the **Method name** and tap **→ Next**.
 - ➔ The method wizard opens the section **3. Configuration**.
- 5 Select a **Approximate interval**, the number of **Measurements**, select a **Tolerance profile** and tap **→ Next**.
 - ➔ The method wizard opens the section **4. Weighing item**.
- 6 Select a **Unit** for the weighing and tap **→ Next**.
 - ➔ The method wizard opens the section **5. Save**.
- 7 Tap **✓ Finish** to save the new method.
 - ➔ The method has been created and appears in the list.

5.2.4.2 Performing an "Interval weighing"

This section describes how the method **Interval weighing** is being used in a task example. In this example we are weighing one single weight with a tare container.

- 1 Open the **Methods** section.
- 2 Select a method from the **Methods list** or define a new method.
- 3 Tap **▶ Start method**.
 - ➔ The main weighing screen appears with the selected method.
- 4 Press **→0←** to zero the balance.
- 5 Open the draft shield, if applicable.
- 6 If a container is used, place the container on the weighing pan.
- 7 Press **→T←** to tare the balance.
 - ➔ The tare-measurement starts with **Taring...**
- 8 Place the weighing object into the sample vessel.
- 9 Close the draft shield, if applicable.
- 10 Tap **▶ Start**.

- ➔ The defined method is being executed. The **Results list** shows the current counter.
- 11 Wait until the process is finished.
 - ➔ The **Results list** opens and shows a summary of the weighing results.
- 12 Tap **Complete** to open the export options.
 - ➔ The dialog **Complete task** appears.
- 13 Tap **Export results manually** to export the weighing results to an external USB storage device or tap **Complete** to finish the task.
 - ➔ After completing the task, the results are deleted from the **Results list**.

Note

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

5.2.5 Method "Titration"

The method **Titration** enables the interaction between the balance and the titrator via MT-SICS or RFID tag. The optional RFID reader enables data to be read from and written to an RFID tag. The RFID tag serves as a data carrier between the balance and titrator. The RFID tag placed on the base of a titrating beaker easily and reliably transfers the sample data, e.g., sample ID and weight. For available RFID readers, see "Accessories".

Methods		
Methods list	my general weighing	06/24/2022
Manual operations	my titration	06/24/2022
Tasks		
Tests		
Adjustments		
Delete	Clone	Edit
New	Print	Start method

For details about method settings:

See also

Settings: method "Titration" ▶ Page 135

5.2.5.1 Creating a method "Titration"

≡ **Navigation:** ▼ **Methods** > **Methods list**

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

Note

The maximum text length of the **Sample ID** is 32 characters. If the RFID option activated, only the first 20 characters are transferred to the RFID tag.

5.2.5.2 Performing a "Titration"

This example describes how to prepare a sample for titration and to store the information on the RFID tag of the container using an external RFID reader such as the EasyScan USB. For more information about how to perform the titration, consult the manual of the titrator.

- An RFID tag is fixed under the weighing container.
 - The RFID reader is connected to the balance.
 - A METTLER TOLEDO titrator is connected to the balance via USB.
 - A titration method exists in the **Methods list** with the **RFID option** set to **Read and write**.
- 1 Open the **Methods** section.
 - 2 Select the desired titration method from the **Methods list**.
 - 3 Tap ► **Start method**.
 - ➔ The main weighing screen appears with the selected method.
 - ➔ The wizard indicates the steps to follow to perform the method.
 - 4 Place the container with RFID tag on the RFID reader.
 - ➔ The RFID reader reads the information from the RFID tag
 - ➔ The available data, if any, are included to the running task.
 - 5 If necessary, edit the sample information.
 - 6 Press ►0◀ to zero the balance.
 - 7 Open the draft shield (if applicable) and place the sample vessel in the center of the weighing pan.
 - 8 Close the draft shield (if applicable) and wait until the weight stabilizes.
 - 9 Press ►T◀ to tare the balance.
 - 10 Open the draft shield (if applicable) and place the sample in the sample vessel.
 - 11 Close the draft shield (if applicable) and wait until the weight stabilizes.
 - 12 Tap ✓ **OK** to accept the measurement.
 - ➔ The result is automatically added to the **Results list**.
 - ➔ The weighing result is saved to the **Results list**.
 - 13 Take the container and place it on the RFID reader.
 - 14 Remove the sample vessel.
 - ➔ The task **Titration** gets completed automatically and the RFID-tag information is updated.
 - 15 Continue your workflow on the titrator.

5.2.6 Method "Density determination"

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

Solid: Determines the density of a solid with the help of a density kit.

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

Liquid (pycnometer): Determines the density of a liquid in a glass vessel, for example, using a pycnometer.



For details about method settings:

See also

Settings: method "Density determination" ► Page 143

5.2.6.1 Creating a method "Density determination"

≡ **Navigation:** ▼ **Methods** > **Methods list**

- 1 Tap **+** **New** in the action bar.
 - ➔ The method wizard opens, starting at **1. Method type**.
- 2 Tap **Method type** and select the method type **Density determination**.
- 3 Tap **→ Next**.
 - ➔ The method wizard opens the section **2. Identification**.
- 4 Define the **Method name** and **Result description** and tap **→ Next**.
 - ➔ The method wizard opens the section **3. Configuration**.
- 5 Select the **Determination type** and define the corresponding settings, e.g., **Density unit** and **Weighing settings**.
- 6 Tap **→ Next**.
 - ➔ The method wizard opens the section **4. Weighing item**.
- 7 Define **Initial values for weighing** and tap **→ Next**.
 - ➔ The method wizard opens the section **5. Save**.
- 8 Tap **✓ Finish** to save the new method.
 - ➔ The method has been created and appears in the list.

Note

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

5.2.6.2 Performing a "Density determination"

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

- A density kit is available for the balance.
- 1 Open the **Methods** section.
 - 2 Select a method from the **Methods list** or define a new method.
 - 3 Tap **► Start method**.
 - ➔ The main weighing screen appears with the selected method.
 - 4 Tap **► Start**.
 - 5 Specify the **Temperature** and the **Aux. liquid**.

- 6 Tap **OK**.
- 7 Follow the instructions from the wizard.
 - Note**
For approved balances, if the zeroing fails, use the function **Perform initial zero**, see [Service menu ▶ Page 111].
 - ➔ The **Results list** opens and shows a summary of the weighing results.
- 8 Tap **Complete** to open the printing options.
 - ➔ The dialog **Complete task** appears.
- 9 Tap **Complete**.
 - ➔ The task **Density determination** was successfully completed.

5.2.7 Method "SQC"

The method **SQC** (statistical quality control) is used to gather statistical data about samples to, ultimately, control their quality. This method offers advanced statistical capabilities and can be highly automatized.

The **SQC** method requires a specific license in order to be available on your balance. Contact your METTLER TOLEDO sales representative to purchase the SQC license. After you get your personal license key, sign in to the Software Portal ([▶https://activation.mt.com/](https://activation.mt.com/)), and activate your license key. For more details, consult the instructions provided with your license key.

Methods		
Methods list	my general weighing	06/24/2022
Manual operations	my interval weighing	06/24/2022
Tasks	my SQC	06/24/2022
Tests		
Adjustments		
Delete Clone Edit New Print Start method		

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

For details about method settings:

See also

Settings: method "SQC" ▶ Page 150

5.2.7.1 Creating a method "SQC"

Navigation: ▼ Methods > Methods list

- The SQC license key is activated for the balance.
- 1 Tap **New** in the action bar.
 - ➔ The method wizard opens, starting at **1. Method type**.
 - 2 Tap **Method type** and select the method type **SQC**.
 - 3 Tap **→ Next**.
 - ➔ The method wizard opens the section **2. Identification**.
 - 4 Define the **Method name**.
 - 5 Define **Number of task IDs** and their respective settings.
 - 6 Tap **→ Next**.
 - ➔ The method wizard opens the section **3. Configuration**.

- 7 Select a **Tolerance profile**.
- 8 If using an automatic feeder LV12 for this method, activate the **Automatic feeder support** and specify the **Number of weighing items**, **Discharge feeder at the end**, and the **Feed rate**.
- 9 Tap **→ Next**.
 - ➔ The method wizard opens the section **4. Weighing item**.
- 10 If using a liquid of known density, the results on the weighing screen can be shown in units of volume. If desired, activate the setting **Liquid** and specify the **Liquid density**.
- 11 Specify the **Nominal** weight or volume of an individual weighing item. Alternatively, activate **Use measured average as nominal** and define a **Plausibility reference**.
- 12 Define the tolerance above (**+Tolerance T1**) and below (**-Tolerance T1**).
- 13 If using a second band of tolerances, activate **T2 tolerances** and define **+Tolerance T2** and **-Tolerance T2**.
 - ➔ The method wizard opens the section **5. Save**.
- 14 Tap **✓ Finish** to save the new method.
 - ➔ The method has been created and appears in the list.

5.2.7.2 Performing a "SQC" on packaged goods

The SQC method can be used on samples of a production line for packaged goods. This is illustrated here using the example of water bottles. The specific settings that are appropriate to your application depend on your products, your industry, the regulations of your country, etc.

Setting up the method

- The SQC license key is activated for the balance.
 - A method **SQC** has been created.
- 1 Open the **Methods** section.
 - 2 Select a method **SQC** from the **Methods list**.
 - 3 Tap **✎ Edit**.

Editing ID format

- 1 Tap **ID ID format**.
- 2 Set the **Number of task IDs** to 2.
- 3 To use the **Task ID 1** to identify the batch ID, do not change its **Task description**.
- 4 To use the **Task ID 2** to identify the product number, edit its **Task description**. For example, type in "Product ID".

Editing Weighing

- 1 Tap **⚙ Weighing**.
- 2 Enable the option **Custom time span statistics 1**.
- 3 To gather statistics for a single batch, tap **Statistics 1 - Name** and type in "Single batch".
- 4 Leave the **Electrostatic** settings disabled to reduce the time required to weigh each item.

The time span of the custom statistics is controlled by the user. The label is given in the method as an indication to the user, but the statistics must be reset by the user manually when the time span has elapsed.

Editing Weighing item

- 1 Tap **⚙ Weighing item**.
- 2 Enable the option **Liquid**.
- 3 Specify the density of the liquid, for example 1 g/ml for water.
- 4 Enable **Calculate net weight excl. packaging**.
- 5 Specify the weight of the **Packaging**. In this case, this is the weight of a single empty bottle, e.g., 125 g.
- 6 Specify the **Nominal** volume of the liquid, e.g., 1 liter.
- 7 Set the **+Tolerance T1** and the **-Tolerance T1** to 1.5%.

- 8 Enable the **T2 tolerances**.
- 9 Set the **+Tolerance T2** and the **-Tolerance T2** to 3%.

Editing Automation

- 1 Tap  **Automation**.
- 2 Enable **Automatic zero** and leave **Automatic zero threshold** to its default value.
- 3 Set **Automatic result** to **Without sample tare**. Leave **Automatic result threshold** to its default value and **Weight trigger** to **Exceeding**.

Editing Print / Export

- 1 Keep the default **Print / Export** settings.
- 2 Tap  **Save**.

Running the method

- 1 Select the method from the **Methods list**.
- 2 Tap  **Start method**.
 - ➔ The main weighing screen appears with the selected method.
- 3 Fill in the user-specific task IDs: "Batch ID" and "Product ID".
- 4 Press  **0**  to zero the balance.
- 5 Add one item on the weighing pan. In this example, that is one filled water bottle.
 - ➔ As soon as the weight is stable, the result is automatically added to the **Results list**.
 - ➔ For each individual result, the status indicator shows the status of the result: **OK**, **Not OK**, or **Excluded**.
 - ➔ If the result is within the **Plausibility limits**, the value is added to the statistics.
- 6 Remove the item from the weighing pan.
 - ➔ The balance starts an automatic zeroing.
- 7 Repeat until the desired number of items is reached.
- 8 Tap  **Complete** to open the printing options.
 - ➔ The dialog **Complete task** appears.
- 9 Print or export the results if needed.
- 10 Tap  **Complete**.
 - ➔ The individual results are deleted from the **Results list**, but are still included in the time span statistics.
- 11 To print the time span statistics, select the statistics in the **Results list** and tap  **Print**.

Resetting the statistics

When the time span of the custom statistics has elapsed, the user needs to reset the statistics manually.

- 1 Open the **Results list**.
- 2 Tap the time span statistics that you want to reset.
- 3 Tap  **Reset**.

5.2.7.3 Performing a "SQC" with automatic feeder

In this particular example, the SQC method is used to test medical pills. The pills are dispensed one by one on the weighing pan by the automatic feeder LV12. The specific settings that are appropriate to your application depend on your products, your industry, the regulations of your country, etc.

Setting up the method

- The SQC license key is activated for the balance.
 - A method **SQC** has been created.
 - An automatic feeder LV12 is installed on the balance.
- 1 Open the **Methods** section.
 - 2 Select a method **SQC** from the **Methods list**.

- 3 Tap  **Edit**.

Editing ID format

- 1 Tap  **ID format**.
- 2 Set the **Number of task IDs** to 3.
- 3 To use the **Task ID 1** to identify the batch ID, do not change its **Task description**.
- 4 To use the **Task ID 2** to identify the product number, edit its **Task description**. For example, type in "Product ID".
- 5 To use the **Task ID 3** to identify the production line, edit its **Task description**. For example, type in "Production line".

Editing Weighing

- 1 Tap  **Weighing**.
 - 2 Enable the option **Custom time span statistics 1**.
 - 3 To gather daily statistics, tap **Statistics 1 - Name** and type in "Daily".
 - 4 Enable the option **Custom time span statistics 2**.
 - 5 To gather weekly statistics, tap **Statistics 2 - Name** and type in "Weekly".
 - 6 Leave the **Electrostatic** settings disabled to reduce the time required to weigh each item.
- The time span of the custom statistics is controlled by the user. The label is given in the method as an indication to the user, but the statistics must be reset by the user manually when the time span has elapsed.

Editing Weighing item

- 1 Tap  **Weighing item**.
- 2 Enable **Use measured average as nominal**.
- 3 Set the **Plausibility reference** to the approximate weight of a single pill, e.g., 1 g.
- 4 Set the **Plausibility limits** to 20% .
- 5 Set the **+Tolerance T1** and the **-Tolerance T1** to 5%.
- 6 Enable the **T2 tolerances**.
- 7 Set the **+Tolerance T2** and the **-Tolerance T2** to 10%.

Editing Automation

- 1 Tap  **Automation**.
- 2 If not already done while creating the method, enable the **Automatic feeder support**.
- 3 Set the **Number of weighing items** to 20.
- 4 Set the **Tare Mode** to **Automatic tare**.

Editing Print / Export

- 1 Keep the default **Print / Export** settings.
- 2 Tap  **Save**.

Running the method

- 1 Select the method from the **Methods list**.
- 2 Tap  **Start method**.
 - ➔ The main weighing screen appears with the selected method.
- 3 Fill in the user-specific task IDs: "Batch ID", "Product name", and "Production line".
- 4 Press  **→0←** to zero the balance.
- 5 Place a sample vessel on the weighing pan, big enough to collect all the pills that will be dispensed by the automatic feeder. Make sure that there is no contact between the sample vessel and the automatic feeder.
- 6 Tap  **Start** to start the weighing process.
 - ➔ Due to the method configuration, the balance tares automatically before it starts dispensing the pills.
 - ➔ The automatic feeder dispenses the pills one by one.

- ➔ As soon as the weight is stable, the result is automatically added to the **Results list**.
 - ➔ For each individual result, the status indicator shows the status of the result: **OK**, **Not OK**, or **Excluded**.
 - ➔ If the result is within the **Plausibility limits**, the value is added to the statistics.
 - ➔ When the number of items passing the plausibility check is reached, the **Results list** opens.
- 7 Tap **Complete** to open the printing options.
 - ➔ The dialog **Complete task** appears.
 - 8 Print or export the results if needed.
 - 9 Tap **Complete**.
 - ➔ The individual results are deleted from the **Results list**, but are still included in the time span statistics.
 - 10 To print the time span statistics, select the statistics in the **Results list** and tap **Print**.

Resetting the statistics

When the time span of the custom statistics has elapsed, the user needs to reset the statistics manually.

- 1 Open the **Results list**.
- 2 Tap the time span statistics that you want to reset.
- 3 Tap **Reset**.

5.2.8 Method "Piece Counting"

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

Methods		
Methods list	my general weighing	06/24/2022
Manual operations	my piece counting	06/24/2022
Tasks		
Tests		
Adjustments		
Delete	Clone	Edit
New	Print	Start method

For details about method settings:

See also

Settings: method "Piece Counting" ▶ Page 157

5.2.8.1 Creating a method "Piece Counting"

≡ **Navigation:** ▼ **Methods** > **Methods list**

- 1 Tap **New** in the action bar.
 - ➔ The method wizard opens, starting at **1. Method type**.
- 2 Tap **Method type** and select the method type **Piece Counting**.
- 3 Tap **Next**.
 - ➔ The method wizard opens the section **2. Identification**.
- 4 Define the **Method name** and **Result description** and tap **Next**.
 - ➔ The method wizard opens the section **3. Configuration**.
- 5 Select a **Tolerance profile** and tap **Next**.

- ➔ The method wizard opens the section **4. Weighing item**.
- 6 Define a reference for pieces **Reference PCS**, a **Reference average weight**, **Target weight** and tap ➔ **Next**.
 - ➔ The method wizard opens the section **5. Save**.
- 7 Tap ✓ **Finish** to save the new method.
- ➔ The method has been created and appears in the list.

5.2.8.2 Performing a "Piece Counting"

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

- 1 Open the **Methods** section.
- 2 Select a method from the **Methods list** or define a new method.
- 3 Tap ► **Start method**.
 - ➔ The main weighing screen with the selected method opens. The balance displays the defined target value, the tolerance and the current average weight of one piece.
- 4 Press ➔ **0** ⬅ to zero the balance.
or
If a container is used, place the container (1) on the weighing pan (2) and press ➔ **T** ⬅ to tare the balance.
 - ➔ The tare-measurement starts with **Taring...**
- 5 If not yet done, enter the average weight for a known number of pieces in the method settings. This serves as reference for the piece counting. Tap 📊 to capture the weight of the items on the weighing pan and use it as reference weight.
- 6 Place the pieces in the sample vessel.
- 7 Close the draft shield (if applicable) and wait until the weight stabilizes.
- 8 Tap + **Add result**.
 - ➔ The weighing result is saved to the **Results list**.
- 9 When the weighing process is finished, tap 📄 **Complete** in the action bar.
 - ➔ The window **Complete task** opens. The task-specific information can be printed on a label printer, the **Results list** can be printed manually or automatically (depending on the method settings), and the result can be exported to an external storage device.
- ➔ The task **Piece Counting** was successfully completed.

Note

It is possible to exclude a weighing result from the **Results list**. Open the **Results list**, select a result to exclude, and tap **Exclude result**.

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

5.2.9 Editing a method

To clone a method proceed as follows:

- 1 Open the **Methods** section.
- 2 Select the method that you want to edit.
 - ➔ The line color of the selected method becomes blue.
- 3 Tap ✏ **Edit**.

For details about method settings:

See also

 Weighing methods settings ► Page 111

5.2.10 Cloning a method

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

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

Note

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

5.2.11 Deleting a method

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

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

Note

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

5.2.12 Deleting a task

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**

A task can only be deleted when not in use. The method that is currently used in the background is labeled with the symbol  in the tasks lists. To cancel the task, another task must be activated.

- 1 Select the task to be deleted and tap  **Cancel**.
 - ➔ The dialog  **Cancel task?** opens.
- 2 To delete the task tap  **OK**, to cancel the delete procedure tap  **Cancel**.

5.2.13 Using methods with multiple weighing items (itemized)

Working with itemized methods can simplify the workflow, especially when several weighings with different predefined target weights have to be carried out one after the other. Information such as a target weight and tolerances can be defined for each weighing item within a single task. This may save time and increase quality of weighing processes consisting of multiple steps.

Before multiple weighing items can be used in the weighing process, they must be defined. The two ways of creating a weighing method that includes several weighing items are:

- Directly define the multiple weighing items during the method creating process.
- Use the **Results list** of a running method to define a new method with multiple weighing items.

The following methods use multiple weighing items:

- **General weighing (itemized)**
- **Simple formulation (itemized)**

5.2.13.1 Creating a new method with multiple weighing items (itemized)

This example describes how to define multiple weighing items for the method **General weighing (itemized)**.

- 1 Open the **Methods** section.
- 2 Tap **+ New** in the action bar.
- 3 Tap **Method type** and select **General weighing (itemized)**.
- 4 Step through the method wizard until step **4. Weighing items**.
 - ➔ The dialog **4. Weighing items** appears.
- 5 Select a weighing item from the list and define the **Sample ID**, **Unit**, **Target weight**, **-Tolerance**, and **+Tolerance**.
- 6 Tap **→ Next**.
- 7 Tap **✓ Finish**.
 - ➔ The method has been created and appears in the list.

5.2.13.2 Creating an itemized method from a completed task

It is possible to create a method with multiple items while performing a method that includes a single item, providing that the method type allows it. This example describes how to create a method **General weighing (itemized)** based on a method **General weighing**.

- 1 Start a method **General weighing**.
- 2 Perform three weighings and add the results to the **Results list** by tapping **+ Add result**.
 - ➔ The results are saved to the **Results list**.
- 3 Tap **⋮ More**.
- 4 Tap **📄 Save as method (itemized)**.
- 5 Define a **Method name**.
- 6 Tap **✓ OK**.
 - ➔ A method **General weighing (itemized)** including three items is created and added to the **Methods list** with the name defined by the user.

5.2.13.3 Performing an itemized method

After creating a method with multiple items, it can be started.

- 1 Open the **Methods** section.
- 2 Select an itemized method from the **Methods list**.
- 3 Tap **▶ Start method**.
 - ➔ The main weighing screen opens. The target weight and the tolerance limits defined in the method appear.

5.3 Test weights

5.3.1 Defining an individual test weight

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

≡ **Navigation:** ▼ **Methods** > ⚙ **Tests** > ⚖ **Test weights**

Note

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

- The dialog **Test weights** is open.
- 1 Tap **+ Test weight**.
- 2 Define the test weight settings and confirm with **✓ Finish**.
- ➔ The test weight is defined and will be available later in the test procedure.

5.3.2 Defining a combined test weight

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

≡ **Navigation:** ⚙ **Methods** > ⚙ **Tests** > ⚖ **Test weights**

- The dialog **Test weights** is open.
- At least two individual test weights are defined.
- 1 Tap **⚖ Combined weight**.
- 2 Enter a **Test weight name**.
- 3 Select the **Minimum weight class** for the combined weight.
- 4 Tap **Weights**.
 - ➔ The individual weights of at least **Minimum weight class** are shown.
- 5 Select the weights to include in the combined weight.
- 6 Tap **✓ OK**.
 - ➔ The **Nominal weight** is calculated as the sum of the selected individual weights.
- 7 Tap **✓ Save**.
- ➔ The combined test weight is defined and will be available later in the test procedure.

5.4 Tests

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

≡ **Navigation:** ▼ **Methods** > ⚙ **Tests**

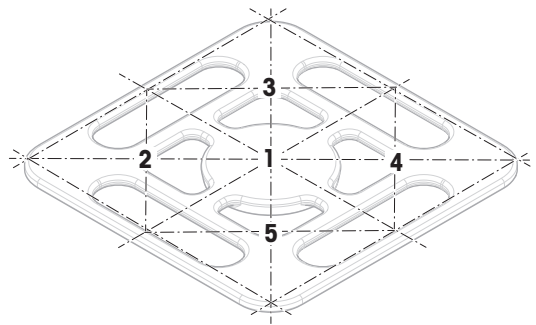
5.4.1 Overview routine tests

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

5.4.1.1 Eccentricity

The purpose of the eccentricity test is to check if every eccentric load deviation (corner load deviation) is within the user SOP tolerances. The corner load is the deviation of the measurement value through off-center (eccentric) loading. The corner load increases with the weight of the load and its distance from the center of the weighing pan support (1). If the display remains consistent, even when the same load is placed on different parts of the weighing pan, the balance does not have corner load deviation.

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



5.4.1.2 Repeatability test

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

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

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

The following test types are available:

- **Repeatab. - 1 TP:** To test the repeatability of the balance at one test point, without tare weight.
- **Repeatab. - Tare - 1 TP:** To test the repeatability of the balance at one test point, with a tare weight.

5.4.1.3 Sensitivity test

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

The following test types are available:

- **Sensitivity - 1 TP:** To test the sensitivity of the balance at one test point, without tare weight.
- **Sensitivity - 2 TP:** To test the sensitivity of the balance at two test points, without tare weight.
- **Sensitivity - Tare - 1 TP:** To test the sensitivity of the balance at one test point, with a tare weight.
- **Sensitivity - Tare - 2 TP:** To test the sensitivity of the balance at two test points, with a tare weight.

5.4.2 Creating a new test

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

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

For details about test settings:

See also

 Tests settings ► Page 167

5.4.3 Performing a test



NOTICE

Incorrect weighing results due to wrong handling of the test weights.

- Only handle test weights with gloves, tweezers, weight forks, or weight handles.

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

Moments when tests could be performed:

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

Requirements:

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

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

See also

- Defining an individual test weight ► Page 64
- Defining a combined test weight ► Page 64
- Tests settings ► Page 167

5.4.3.1 Performing an "Eccentricity"

- 1 Open the **Methods** section.
- 2 Tap **Tests**.
 - ➔ The test(s) previously defined appear on the list.
- 3 Select the eccentricity test you wish to perform and tap ► **Start**.
 - ➔ The test sequence starts.
- 4 Ensure that the weighing pan is empty and clean. Have at hand: the test weight, gloves, and the appropriate tools to handle the test weight.
- 5 When all requirements are fulfilled tap **OK**.
- 6 Make sure that the weighing pan is empty and tap **OK**.
- 7 Choose an available test weight
 - or -
 - add a new test weight and tap **OK**.
- 8 Open the draft shield, if applicable.
- 9 Place the test weight carefully in the middle of the weighing pan.
- 10 Close the draft shield, if applicable.
 - ➔ The measurement starts with **Capturing weight....**
 - ➔ The result of the first measurement is added to the **Results list** as **Position 1**.
- 11 Lift the test weight and move to position 2 (front left corner of the weighing pan).
 - ➔ The measurement starts with **Capturing weight....**
 - ➔ The result of the second measurement is added to the **Results list** as **Position 2**.

- 12 Lift the test weight and move to position 3 (back left corner of the weighing pan).
 - ➔ The measurement starts with **Capturing weight...**
 - ➔ The result of the third measurement is added to the **Results list** as **Position 3**.
- 13 Lift the test weight and move to position 4 (back right corner of the weighing pan).
 - ➔ The measurement starts with **Capturing weight...**
 - ➔ The result of the fourth measurement is added to the **Results list** as **Position 4**.
- 14 Lift the test weight and move to position 5 (front right corner of the weighing pan).
 - ➔ The measurement starts with **Capturing weight...**
 - ➔ The result of the fifth measurement is added to the **Results list** as **Position 5**.
 - ➔ The eccentricity test is finished.
- 15 Remove the test weight carefully and tap **OK**.
 - ➔ The door closes automatically (depending on the door settings) and the balance starts an automatic zeroing.
- 16 When the test procedure is finished, tap **Finish**.
 - ➔ The result dialog opens.
- 17 To print the results tap **Print**, to finish the test tap **Finish**.

Test result

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

See also

- Settings: Eccentricity ► Page 167
- Troubleshooting ► Page 185

5.4.3.2 Performing a "Repeatability test"

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

Repeatability - 1 test point

- 1 Open the **Methods** section.
- 2 Tap **Tests**.
 - ➔ The test(s) previously defined appear on the list.
- 3 Select the repeatability test you wish to perform and tap ► **Start**.
 - ➔ The test sequence starts.
- 4 Ensure that the weighing pan is empty and clean. Have at hand: the test weight, gloves, and the appropriate tools to handle the test weight.
- 5 When all requirements are fulfilled tap **OK**.
- 6 Make sure that the weighing pan is empty and tap **OK**.
 - ➔ The balance starts an automatic zeroing.
- 7 Choose an available test weight
 - or -
 - add a new test weight and tap **OK**.
- 8 Open the draft shield, if applicable.
- 9 Place the test weight carefully in the middle of the weighing pan.
- 10 Close the draft shield, if applicable.
 - ➔ The measurement starts with **Capturing weight...**
 - ➔ The result of the measurement is added to the **Results list**.
- 11 Remove the test weight carefully and tap **OK**.
 - ➔ The balance starts an automatic zeroing.

- ➔ Depending on the specified **Number of repetitions** you have to repeat the last four steps a certain number of times.

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

- ➔ The result dialog opens.

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

Repeatability - Tare - 1 test point

1 Open the **Methods** section.

2 Tap  **Tests**.

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

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

- ➔ The test sequence starts.

4 Ensure that the weighing pan is empty and clean. Have at hand: the test weight, gloves, and the appropriate tools to handle the test weight.

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

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

- ➔ The balance starts an automatic zeroing.

7 Choose an available test weight/test container

- or -

add a new test weight/test container.

8 Place the test weight/test container in the center of the weighing pan and tap  **OK**.

- ➔ The measurement starts with **Taring...**

- ➔ The tare result is added to the **Results list**.

9 Carefully place the test weight onto the weighing pan or into the tare container.

- ➔ The measurement starts with **Capturing weight...**

- ➔ The result of the measurement is added to the **Results list**.

10 Remove the test weight, leave the container on the weighing pan.

- ➔ The measurement starts with **Taring...**

11 Carefully place the test weight onto the weighing pan or into the tare container.

- ➔ The measurement starts with **Capturing weight...**

- ➔ The result of the measurement is added to the **Results list**.

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

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

- ➔ The result dialog opens.

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

Test result

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

See also

 Settings: Repeatability test ▶ Page 170

 Troubleshooting ▶ Page 185

5.4.3.3 Performing a "Sensitivity test"

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

Sensitivity - 1 test point

- 1 Open the **Methods** section.
- 2 Tap  **Tests**.
 - ➔ The test(s) previously defined appear on the list.
- 3 Select the sensitivity test you wish to perform and tap  **Start**.
 - ➔ The test sequence starts.
- 4 Ensure that the weighing pan is empty and clean. Have at hand: the test weight, gloves, and the appropriate tools to handle the test weight.
- 5 When all requirements are fulfilled tap  **OK**.
- 6 Make sure that the weighing pan is empty and tap  **OK**.
 - ➔ The balance starts an automatic zeroing.
- 7 Choose an available test weight
- or -
add a new test weight and tap  **OK**.
- 8 Open the draft shield, if applicable.
- 9 Place the test weight carefully in the middle of the weighing pan.
- 10 Close the draft shield, if applicable.
 - ➔ The measurement starts with **Capturing weight...**
 - ➔ The result of the measurement is added to the **Results list**.
- 11 When the test procedure is finished, tap  **Finish**.
 - ➔ The result dialog opens.
- 12 To print the results tap  **Print**, to finish the test tap  **Finish**.

Sensitivity - Tare - 1 test point

- 1 Open the **Methods** section.
- 2 Tap  **Tests**.
 - ➔ The test(s) previously defined appear on the list.
- 3 Select the sensitivity test you wish to perform and tap  **Start**.
 - ➔ The test sequence starts.
- 4 Ensure that the weighing pan is empty and clean. Have at hand: the test weight, gloves, and the appropriate tools to handle the test weight.
- 5 When all requirements are fulfilled tap  **OK**.
- 6 Make sure that the weighing pan is empty and tap  **OK**.
 - ➔ The balance starts an automatic zeroing.
- 7 Choose an available test weight
- or -
add a new test weight and tap  **OK**.
 - ➔ The measurement starts with **Capturing weight...**
 - ➔ The tare result is added to the **Results list**.
- 8 Carefully place the test weight onto the weighing pan or into the tare container.
 - ➔ The measurement starts with **Capturing weight...**
 - ➔ The result of the measurement is added to the **Results list**.
- 9 When the test procedure is finished, tap  **Finish**.
 - ➔ The result dialog opens.
- 10 To print the results tap  **Print**, to finish the test tap  **Finish**.

Test result

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

See also

-  Settings: Sensitivity test ▶ Page 174
-  Troubleshooting ▶ Page 185

5.4.4 Editing a test

A test can only be edited when it is not running.

≡ **Navigation:** ▼ **Methods** >  **Tests**

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

See also

-  Tests settings ▶ Page 167

5.4.5 Printing test results

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

- 1 Open the **Methods** section.
- 2 Tap  **Tests**.
 - ➔ The test list opens.
- 3 Select the test to print and tap  **Print all**.
 - ➔ The test is printed.

5.4.6 Deleting a test

- 1 Open the **Methods** section.
- 2 Tap  **Tests**.
 - ➔ The test list opens.
- 3 Select the test to delete.
- 4 Tap  **Delete**.
 - ➔ The section **Delete routine test** opens. The message **Do you really want to delete the selected routine test?** appears.
- 5 Tap  **Yes** to delete the test. Tap  **No** to cancel the deleting process.
 - ➔ After deleting the test, the system returns to the test list. The test has been deleted and does not appear on the list anymore.

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

5.4.7 Consulting the test history

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

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

See also

-  History ▶ Page 94

5.5 Adjustments

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

Navigation: ▼ **Methods** >  **Adjustments**

5.5.1 Internal adjustment

5.5.1.1 Editing an "Internal adjustment"

- 1 Open the **Methods** section.
- 2 Tap  **Adjustments**.
- 3 Tap  **Edit**.
- 4 Set the **Strategy** to **Internal adjustment**.
- 5 Define the adjustment parameters.
- 6 Tap  **Save**.

➔ Your internal adjustment has been edited.

For details about adjustment settings:

See also

 Adjustments settings ► Page 177

5.5.1.2 Performing an "Internal adjustment"

- The adjustment **Strategy** is set to **Internal adjustment**.
- 1 Open the **Methods** section, tap  **Adjustments**, select the adjustment, and tap ► **Start**
- or -
from the main weighing screen, tap **⋮ More** and tap **Start adjustment**.
 - ➔ **Internal adjustment** is being executed.
 - ➔ When the adjustment has been completed, an overview of the adjustment results appears.
 - 2 Tap  **Print** if you want to print the results.
 - 3 Tap  **Finish adjustment**.
 - ➔ The balance is ready.

5.5.2 External adjustment

5.5.2.1 Editing an "External adjustment"

- 1 Open the **Methods** section.
- 2 Tap  **Adjustments**.
- 3 Tap  **Edit**.
- 4 Set the **Strategy** to **External adjustment**.
- 5 Tap  **Test weights - Edit test weight**.
 - ➔ The dialog **Test weights - Edit test weight** opens.
- 6 Select a test weight from the list and tap  **OK**
- or -
tap  **Test weight** to define a new test weight.
- 7 Define the test weight settings and confirm with  **OK**.
- 8 Tap  **Save**.

➔ Your external adjustment has been edited.

For details about adjustment settings:

See also

 [Adjustments settings ▶ Page 177](#)

5.5.2.2 Performing an "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 Select the external adjustment you wish to perform and tap ► **Start**.
 - ➔ The adjustment process starts.
- 4 Ensure that the weighing pan is empty and clean. Have at hand: the test weight, gloves, and the appropriate tools to handle the test weight.
- 5 When all requirements are fulfilled tap ✓ **OK**.
- 6 Make sure that the weighing pan is empty and tap ✓ **OK**.
- 7 Choose an available test weight
 - or -
 - add a new test weight and tap ✓ **OK**.
- 8 Open the draft shield, if applicable.
- 9 Place the test weight carefully in the middle of the weighing pan.
- 10 Close the draft shield, if applicable.
 - ➔ The adjustment starts.
- 11 Remove the test weight from the weighing pan and tap ✓ **OK**.
 - ➔ The adjustment is finishing and the adjustment results appear.
- 12 To print the results tap  **Print**, to finish the test tap ✓ **Finish**.

See also

 [Defining an individual test weight ▶ Page 64](#)

 [Defining a combined test weight ▶ Page 64](#)

5.5.3 Consulting the adjustment history

≡ **Navigation:** ► **Balance menu** >  **History** >  **Adjustments**

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

See also

 [History ▶ Page 94](#)

5.6 Peripheral devices

5.6.1 Printer

Printers can help document your processes and results. Two types of printers can be connected to the balance:

- strip printer: to print on strip paper, for example, for the documentation of weighing result
- label printer: to print on label stickers, for example, for the identification of samples

Each weighing method offers the possibility to trigger the printing process manually on a label or on strip paper when completing a task. The settings of the method can also be edited such that the results are automatically printed when a result is added to the result list or when the task is complete, for example. When using a label printer, the template of the printed label is defined individually for each method.

The following sections show typical use cases of installing and using a printer with the balance. They cover two combinations of settings amongst: manual and automatic printing, strip and label printing, task results and weighing item results printing, as well as USB and Bluetooth connections. Other combinations of settings can be achieved similarly.



NOTICE

Damage to the device due to inappropriate use

- Consult the User Manual of the device before using it.

5.6.1.1 Printing results manually on a strip printer via USB

This example describes how to install a strip printer using a USB cable. For this example, the method does not include automatic printing, but the results are printed manually when the task is completed.

Installing and configuring the printer

- The printer is connected to the power outlet and switched on.
 - The USB cable is connected to the printer.
 - The main weighing screen is shown on the balance terminal.
- 1 Connect the USB cable to one of the USB-A ports of the balance.
 - ➔ The balance detects the USB device automatically. The dialog **Add device** appears, informing the user that the system has found a specific device.
 - 2 Set a name for the USB device, then tap → **Next**.
 - 3 Tap ✓ **Finish**.
 - ➔ The USB device is connected and saved to the system.
 - ➔ The settings of the device are displayed.
 - 4 Tap **Printer settings**.
 - 5 Tap **Printer category** and select **Strip printer**.
 - 6 Tap ✓ **Save**.

Note

Some printers can print both on labels or on strip paper. In those cases, the printer type must be specified in the settings of the printer. If the printer can only print on labels or can only print on strip paper, the printer type is set automatically.

Note

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

Note

If the USB cable is disconnected and reconnected, the connection will be detected automatically. The printer does not need to be installed again.

Printing a test page

After installing and configuring a printer, a test page can be printed.

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** > 🖨 **Devices / Printers**

- A printer is connected to the balance.
- 1 Navigate to the section 🖨 **Devices / Printers**.
 - 2 Select the printer in the list of devices.

- 3 Tap  **Print test page** in the action bar.

Printing the results

≡ **Navigation:** ▼ **Methods** >  **Methods list**

- A strip printer is connected to the balance.
- 1 Select a method from the **Methods list**.
 - 2 Tap ► **Start method**.
 - 3 Perform the necessary actions to weigh your sample(s).
 - 4 Tap  **Complete** to open the export options.
 - ➔ The dialog **Complete task** appears.
 - 5 Tap **Print results manually** to print the results on the strip printer.

See also

 [Devices / Printers](#) ► Page 108

5.6.1.2 Printing results automatically on a label printer via Bluetooth

This example describes how to install a label printer using a Bluetooth adapter. For this example, the method is set such that a label is printed automatically every time the user taps **Add result**.



For more information about how to install your Bluetooth adapter, consult the Installation Instructions provided with it.

Installing and configuring the printer

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** >  **Interfaces** >  **Bluetooth**

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** >  **Devices / Printers**

- The printer is connected to the power outlet and switched on.
 - A Bluetooth RS adapter (to connect to the printer) and a Bluetooth USB adapter (to connect to the balance) are available.
 - The switch on the Bluetooth RS adapter is in the position DCE.
 - You have identified the MAC address (unique device address) on the Bluetooth RS adapter.
 - The main weighing screen is shown on the balance terminal.
- 1 Connect the Bluetooth USB adapter to one of the USB-A ports of the balance.
 - 2 Connect the Bluetooth RS adaptor to the printer.
 - ➔ The lights on the Bluetooth RS adaptor start blinking.
 - 3 Navigate to the section  **Bluetooth**.
 - 4 Set **Activation** to **Active**.
 - 5 Tap ✓ **Save**.
 - 6 Navigate to the section  **Devices / Printers**.
 - 7 Tap + **Add device**.
 - ➔ The dialog **Add device** opens.
 - 8 Select **Bluetooth connection** and tap → **Next**.
 - ➔ The message **Searching for devices...** appears.
 - ➔ The MAC addresses of all the available Bluetooth devices appear.
 - 9 Select the MAC address of the Bluetooth RS adapter from the list and tap → **Next**.
 - 10 Check that the **PIN Code** is correct: [Mettler-Toledo](#).
 - 11 Tap → **Next** to confirm the Bluetooth connection.

- ➔ The balance is pairing the Bluetooth USB adapter from the balance with the Bluetooth RS adapter from the printer.
- ➔ The system informs the user that it has found the device.

12 Set a name for the USB device, then tap → **Next**.

13 Tap ✓ **Finish**.

- ➔ The USB device is connected and saved to the system.
- ➔ The settings of the device are displayed.

14 Tap **Printer settings**.

15 Tap **Printer category** and select **Label printer**.

16 Tap ✓ **Save**.

Note

When setting up the Bluetooth connection, the balance pairs with the Bluetooth RS adaptor, not with the printer that is attached to it. When the user connects the same Bluetooth RS adaptor to another printer, the user must remove the configured printer from the list of devices and add the new printer.

Note

Some printers can print both on labels or on strip paper. In those cases, the printer type must be specified in the settings of the printer. If the printer can only print on labels or can only print on strip paper, the printer type is set automatically.

Note

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

Note

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

Printing a test page

After installing and configuring a printer, a test page can be printed.

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** > 🖨 **Devices / Printers**

- A printer is connected to the balance.
- 1 Navigate to the section 🖨 **Devices / Printers**.
- 2 Select the printer in the list of devices.
- 3 Tap 🖨 **Print test page** in the action bar.

Editing the method settings

≡ **Navigation:** ▼ **Methods** > ⌵ **Methods list**

- 1 Select a method from the **Methods list**.
- 2 Tap ✏ **Edit**.
- 3 Tap 🖨 **Print / Export**.
- 4 Tap **Label printout for weighing item**.
- 5 Set **Automatic label printout for weighing item** to **Active**.
- 6 Select the desired template from the list: **Used template**.
- 7 Tap **Field settings**.
- 8 Customize the content of each field.
- 9 Tap ✓ **OK**.
- 10 Tap ✓ **Save**.

Printing the results

Navigation: ▼ **Methods** > ☰ **Methods list**

- A label printer is connected to the balance.
- A method exists with the desired template for the printed label.
- 1 Select the method from the **Methods list**.
- 2 Tap ► **Start method**.
- 3 Perform the necessary actions to weigh your sample.
- 4 Tap ➕ **Add result**.
 - ➡ The label for this weighing item is automatically printed on the label printer.

See also

🔗 Bluetooth ► Page 108

🔗 Devices / Printers ► Page 108

5.6.2 Barcode reader

The barcode reader can be used to enter text or numbers in any input field on the terminal. The format of the field must be compatible with the scanned barcode. Depending on the settings of the weighing method, the characters of the barcode can be added to the active field or to a specific field of the method. The latter is depicted by the following example.



NOTICE

Damage to the device due to inappropriate use

- Consult the User Manual of the device before using it.

5.6.2.1 Scan a sample ID using a barcode reader

This example shows how the barcode reader can be used to specify the ID of a sample in a method of type **General weighing**. A similar procedure can be applied to other method types and/or other input fields.

Installing and configuring the barcode reader

- A barcode reader is available.
- The main weighing screen is shown on the balance terminal.
- 1 Connect the USB cable to one of the USB-A ports of the balance.
 - ➡ The balance detects the USB device automatically. The dialog **Add device** appears and a barcode is displayed.
- 2 Use the barcode reader to scan the barcode on the display.
- 3 Tap ➡ **Next**.
- 4 Set a name for the USB device, then tap ➡ **Next**.
- 5 Tap ✓ **Finish**.
 - ➡ The USB device is connected and saved to the system.
 - ➡ The settings of the device are displayed.
- 6 Tap ✓ **Save**.
 - ➡ The barcode reader is ready to use.

Editing the method settings

Navigation: ▼ Methods > ☰ Methods list

- A method **General weighing** exists.
 - The method contains one **Result ID** for which **Result description** is set to **Sample ID**.
- 1 Select the method from the **Methods list**.
 - 2 Tap **Edit**.
 - 3 Tap **Automation**.
 - 4 Tap **Barcode data target** and select the **Result ID** corresponding to **Sample ID**, for example, **Result ID 1**.
 - 5 Tap **Save**.

Running the method

Navigation: ▼ Methods > ☰ Methods list

- The barcode reader is connected to the balance.
 - You have a sample identified with a barcode.
- 1 Select the method from the **Methods list**.
 - 2 Tap **Start method**.
 - 3 Use the barcode reader to scan the barcode that identifies your sample.
 - ➔ The text associated to the barcode appears in the field of **Sample ID**.
 - 4 Perform the necessary actions to weigh your sample.
 - 5 Tap **Add result**.

See also

Devices / Printers ▶ Page 108

5.6.3 RFID reader

Smart Tags are RFID stickers that you can attach to the bottom of sample vessels. They are used to store information about the sample. They are typically used with the method type **Titration**. The content of the Smart Tags can be accessed and edited using an RFID reader, for example, an EasyScan USB or a SmartScan.



NOTICE

Damage to the device due to inappropriate use

- Consult the User Manual of the device before using it.

See also

Performing a "Titration" ▶ Page 54

Devices / Printers ▶ Page 108

5.6.3.1 Reading data from an RFID Smart Tag using an EasyScan USB

This example describes how to use an EasyScan USB to read data from a Smart Tag.

Installing the EasyScan USB

- An EasyScan USB is available.
 - A USB-A to USB-B cable is available.
 - The main weighing screen is shown on the balance terminal.
- 1 Connect the USB cable to a USB-A port on the balance.
 - 2 Connect the USB cable to the USB-B port of the RFID reader.

- ➔ The balance detects the USB device automatically. The dialog **Add device** appears, informing the user that the system has found a specific device.
- 3 Set a name for the USB device, then tap → **Next**.
- 4 Tap ✓ **Finish**.
 - ➔ The USB device is connected and saved to the system.
 - ➔ The settings of the device are displayed.
- 5 Tap ✓ **Save**.

Testing the RFID reader

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** > 🖨 **Devices / Printers**

- An RFID reader is installed on the balance.
- A Smart Tag RFID tag is available.
- 1 Navigate to the section 🖨 **Devices / Printers**.
- 2 Select the device from the list of devices and printers.
- 3 Tap 🖨 **Test device**.
 - ➔ The dialog **Test RFID device** opens.
- 4 Place an RFID tag on the RFID reader.
 - ➔ If the RFID reader works correctly, the message **RFID tag successfully detected.** is shown.
- 5 Tap ✓ **OK**.
 - ➔ The RFID reader is working properly.

Reading data from a Smart Tag

≡ **Navigation:** ► **Balance menu** > 🛠 **Maintenance** > 📶 **Format RFID**

- An RFID reader is installed on the balance.
- A Smart Tag RFID tag is available.
- 1 Navigate to the section 📶 **Format RFID**.
- 2 Tap 📶 **Format RFID**.
 - ➔ The dialog **Format RFID tag** opens.
- 3 Place the RFID tag on the RFID reader.
 - ➔ The wizard asks **Do you want to format the RFID tag and delete all data?**
 - ➔ In the dialog, you can read all the stored data.
- 4 To format the RFID tag, tap → **Format**. To close the dialog, tap ✕ **Cancel**.

5.6.3.2 Formatting an RFID Smart Tag using an EasyScan

This example describes how to use a SmartScan to format a Smart Tag, that is, delete all data.
This example describes how to use an EasyScan to format a Smart Tag, that is, delete all data.

Formatting a Smart Tag

≡ **Navigation:** ► **Balance menu** > 🛠 **Maintenance** > 📶 **Format RFID**

- An RFID reader is installed on the balance.
- A Smart Tag RFID tag is available.
- 1 Navigate to the section 📶 **Format RFID**.
- 2 Tap 📶 **Format RFID**.
 - ➔ The dialog **Format RFID tag** opens.
- 3 Place the RFID tag on the RFID reader.
 - ➔ The wizard asks **Do you want to format the RFID tag and delete all data?**
- 4 To format the RFID tag, tap → **Format**.

- ➔ The RFID tag is formatted.

5.6.4 Foot switch and ErgoSens

The foot switch and the ErgoSens are optional accessories that allow you to perform operations on your balance without having to use the terminal. The following section shows an example of an operation that can be performed with a foot switch or an ErgoSens.



NOTICE

Damage to the device due to inappropriate use

- Consult the User Manual of the device before using it.

5.6.4.1 Taring the balance with an ErgoSens

This example explains how to install a USB ErgoSens and configure it to tare the balance.

Installing and configuring the ErgoSens

- An ErgoSens is available.
 - The main weighing screen is shown on the balance terminal.
- 1 Connect the USB cable to one of the USB-A ports of the balance.
 - ➔ The balance detects the USB device automatically. The dialog **Add device** appears, informing the user that the system has found a specific device.
 - 2 Set a name for the USB device, then tap ➔ **Next**.
 - 3 Tap ✓ **Finish**.
 - ➔ The USB device is connected and saved to the system.
 - ➔ The settings of the device are displayed.
 - 4 Tap **Function** and select **Tare**.
 - 5 Tap ✓ **Save**.
 - ➔ The ErgoSens is ready to use to tare the balance.

See also

[🔗](#) Devices / Printers ▶ Page 108

5.6.5 Editing the settings of a device

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

- 1 Navigate to the section 🖨 **Devices / Printers**.
 - ➔ A list of devices appears, showing the connection status and the connection type of each device.
- 2 Select the device from the list of devices and printers.
 - ➔ The details of the device are shown.
- 3 To change the name of the device, tap **Name**, enter the name and tap ✓.
- 4 Some devices have additional editable settings. Tap on those settings to edit them.
- 5 Save the settings.

5.6.6 Deleting a device

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

- 1 Navigate to the section 🖨 **Devices / Printers**.
 - ➔ A list of devices appears, showing the connection status and the connection type of each device.
- 2 Select the device from the list of devices and printers.

- 3 Tap  **Delete device**.
 - ➔ A message appears, asking you to confirm that you want to delete the device.
- 4 To delete, tap  **OK**. To cancel the delete dialog, tap  **Cancel**.
 - ➔ The device is deleted.

5.7 Remote control via services

5.7.1 LabX service

To enable communication between LabX and instruments, the appropriate settings on 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.



To install LabX on your computer and for more information about LabX, consult the LabX Reference Manual (RM).

Note

Once the connection between LabX and the balance is established, the balance terminal is controlled by LabX. It is always possible to switch to manual mode directly on the terminal.

See also

 LabX / Services ► Page 109

5.7.1.1 Using LabX via a USB connection

To establish this connection, the USB driver must be installed on your computer. The driver is available online: www.mt.com/labweighing-software-download

Connecting the balance to the computer

- A USB-A to USB-B cable is available.
- 1 Connect the USB cable to the USB-B port of the balance.
 - 2 Connect the USB cable to a USB-A port on the computer.

Configuring the service on the balance

≡ **Navigation:** ► **Balance menu** >  **Settings** >  **LabX / Services**

- 1 Navigate to the section  **LabX / Services**.
- 2 Set **LabX service** to **USB**.
- 3 Tap  **Save**.

5.7.1.2 Using LabX via an Ethernet connection

Connecting the balance to the network

≡ **Navigation:** ► **Balance menu** >  **Settings** >  **Interfaces**

- An Ethernet cable is available.
- 1 Connect the Ethernet cable to the Ethernet port of the balance.
 - 2 Connect the other end of the Ethernet cable to your local network.
 - 3 Navigate to the section  **Interfaces**.
 - 4 Tap **Ethernet**.
 - 5 Keep the settings of the Ethernet connection at hand. This information might be required to set up the connection at a later stage.

- 6 Tap ✓ **Save**.

Configuring the service on the balance

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** > 🧪 **LabX / Services**

- The balance is connected to the network via Ethernet.
- 1 Navigate to the section 🧪 **LabX / Services**.
 - 2 Set **LabX service** to **Network**.
 - 3 Note the port number. This information might be required to set up the connection at a later stage.
 - 4 Tap ✓ **Save**.

5.7.2 MT-SICS service

All XPR and XSR balances can be integrated to a network and can be configured to communicate with a computer using MT-SICS (METTLER TOLEDO Standard Interface Command Set). The available commands depend on the functionality of the balance.

For further information, please contact your METTLER TOLEDO representative.

The full documentation related to MT-SICS for XPR and XSR balances is available online.

► www.mt.com/labweighing-software-download

See also

🔗 [LabX / Services](#) ► Page 109

5.7.2.1 Using MT-SICS via a USB connection

This example describes how to establish a direct USB connection between your balance and a computer. The computer can then be used to control the balance and receive data using the commands of MT-SICS.

To establish this connection, the USB driver must be installed on your computer. The driver is available online:

► www.mt.com/labweighing-software-download

Connecting the balance to the computer

- A USB-A to USB-B cable is available.
- 1 Connect the USB cable to the USB-B port of the balance.
 - 2 Connect the USB cable to a USB-A port on the computer.

Configuring the service on the balance

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** > 🧪 **LabX / Services**

- 1 Navigate to the section 🧪 **LabX / Services**.
- 2 Set **MT-SICS** to **USB**.
- 3 Tap ✓ **Save**.

Configuring the computer

- The USB driver is installed on the computer.
 - A terminal program is installed and running on the computer.
- 1 Provide the necessary connection settings to the terminal program.
 - 2 Test the connection by sending a command to the balance, for example, **s** to retrieve the stable weight from the balance.
 - ➡ If a string is received by the terminal program with the weight, date, and time, the connection has been successfully established.
 - ➡ If no response is received by the terminal program, check the connection settings.

5.7.2.2 Using MT-SICS via an Ethernet connection

This example describes how to establish a connection between a balance and a computer through a local network. The computer can then be used to control the balance and receive data using the commands of MT-SICS.

Connecting the balance to the network

≡ **Navigation:** ► **Balance menu** > ⚙️ **Settings** > 🌐 **Interfaces**

- An Ethernet cable is available.
- 1 Connect the Ethernet cable to the Ethernet port of the balance.
- 2 Connect the other end of the Ethernet cable to your local network.
- 3 Navigate to the section 🌐 **Interfaces**.
- 4 Tap **Ethernet**.
- 5 Keep the settings of the Ethernet connection at hand. This information might be required to set up the connection at a later stage.
- 6 Tap ✓ **Save**.

Configuring the service on the balance

≡ **Navigation:** ► **Balance menu** > ⚙️ **Settings** > 🧪 **LabX / Services**

- The balance is connected to the network via Ethernet.
- 1 Navigate to the section 🧪 **LabX / Services**.
- 2 Set **MT-SICS** to **Network**.
 - ➡ The port number appears in the list of settings.
- 3 Note the port number. This information might be required to set up the connection at a later stage.
- 4 Tap ✓ **Save**.

Configuring the computer

- A terminal program is installed and running on the computer.
- 1 Provide the necessary connection settings to the terminal program.
 - ➡ The computer is connected to the same network and the same subnet as the balance.
- 2 Test the connection by sending a command to the balance, for example, `s` to retrieve the stable weight from the balance.
 - ➡ If a string is received by the terminal program with the weight, date, and time, the connection has been successfully established.
 - ➡ If no response is received by the terminal program, check the connection settings.

Note

For more information, contact your network administrator.

5.7.3 Web service

The web service allows users to send commands to control and transfer data from the balance using a web browser.

Connecting the balance to the network

≡ **Navigation:** ► **Balance menu** > ⚙️ **Settings** > 🌐 **Interfaces**

- An Ethernet cable is available.
- 1 Connect the Ethernet cable to the Ethernet port of the balance.
- 2 Connect the other end of the Ethernet cable to your local network.
- 3 Navigate to the section 🌐 **Interfaces**.
- 4 Tap **Ethernet**.

- 5 Keep the settings of the Ethernet connection at hand. This information might be required to set up the connection at a later stage.
- 6 Tap ✓ **Save**.

Configuring the service on the balance

≡ **Navigation:** ▶ **Balance menu** > ⚙ **Settings** > 🧪 **LabX / Services**

- The balance is connected to the network via Ethernet.
- The computer and the balance are connected to the same network.
- A web browser is available on the balance.

- 1 Navigate to the section 🧪 **LabX / Services**.
- 2 Activate and configure the service.
- 3 Tap ✓ **Save**.



The documentation of web service and related examples are available online.

▶ www.mt.com/labweighing-software-download

Note

For more information, contact your network administrator.

Exporting the WSDL definition file

The WSDL (Web Services Description Language) file describes the functionalities of the web service. The WSDL file can be exported as follows.

≡ **Navigation:** ▶ **Balance menu** > ⚙ **Settings** > 🏠 **Balance** > 🧪 **General**

- 1 Navigate to 🧪 **General**.
- 2 Tap ⋮ **More**.
- 3 Tap **Export web service WSDL file**
 - ➡ A list of available target locations is shown, including the file server and any USB storage device connected to the balance.
- 4 Select the target device on which you want to store the data.
- 5 Tap → **Next**.
 - ➡ If the export was successful, the display shows 🟢 with the name of the file and the target folder.

See also

🔗 LabX / Services ▶ Page 109

5.8 Data management

5.8.1 Exporting results

This example describes how to export results to a file server at the end of a task. A similar exporting procedure can be followed when using a USB storage device.

Connecting to a file server

≡ **Navigation:** ▶ **Balance menu** > ⚙ **Settings** > 🧪 **LabX / Services**

- 1 Navigate to the section 🧪 **LabX / Services**.
- 2 Set **File server** to **Active**.
- 3 Tap **File server configuration**.
- 4 Tap **Server name** and type the name of your server.
- 5 Tap **Share name** and type the path of the shared folder that you want to use.

- 6 Tap **Credentials** in the action bar.
 - ➔ The dialog **Set file server credentials** appears.
- 7 Fill in your credentials (**Domain name**, **User name**, and **Password**) and tap ✓ **OK**.
 - ➔ The credentials are saved on the balance.
- 8 Tap ✓ **OK** to establish the connection to the file server.

Exporting the XSD file

Weighing results are exported in XML files. The description of the elements of the XML file is provided in an XSD (XML Schema Definition) file. The XSD file can be exported as follows.

Note

If the XSD file is used for validation, the version contained in the XML file must match the version of the XSD schema.

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** > ⚖ **Balance** > ⚙ **General**

- 1 Navigate to ⚙ **General**.
- 2 Tap ⋮ **More**.
- 3 Tap **Export results XSD files**.
 - ➔ A list of available target locations is shown, including the file server and any USB storage device connected to the balance.
- 4 Select the target device on which you want to store the data.
- 5 Tap → **Next**.
 - ➔ If the export was successful, the display shows 📁 with the name of the target folder.

Exporting weighing results

≡ **Navigation:** ▼ **Methods** > ⚖ **Methods list**

- An Ethernet connection is established.
 - A file server access is configured.
- 1 Select a method from the **Methods list**.
 - 2 Tap ► **Start method**.
 - 3 Perform the necessary actions to weigh your sample(s).
 - 4 Tap 📄 **Complete** to open the export options.
 - ➔ The dialog **Complete task** appears.
 - 5 Tap **Export results manually** to export the results.
 - ➔ A list of available target locations is shown, including the file server and any USB storage device connected to the balance.
 - 6 Select **File server**.
 - 7 Tap → **Next**.
 - ➔ The system checks the credentials for the file server connection.
 - ➔ The results are exported to the file server.
 - 8 Tap ✓ **Complete**.
 - ➔ After completing the task, the results are deleted from the **Results list**.

See also

🔗 [LabX / Services](#) ► Page 109

5.8.2 Sending individual results to a computer

The balance offers the possibility to send weighing results to a computer via a USB connection. This feature can be used, for example, to send results to an Excel sheet, to a text file, or to MT-SICS. When used in mode **HID** (Human Interaction Device), the result is sent to the computer where the cursor is located, exactly as if it were a keyboard input (also referred to as "drop to cursor").

This example describes how to send weighing results from a method of type **General weighing** directly into an Excel file on a computer using the functionality **HID**.

Connecting the balance to the computer

- A USB-A to USB-B cable is available.
- 1 Connect the USB cable to the USB-B port of the balance.
- 2 Connect the USB cable to a USB-A port on the computer.

Configuring the balance

≡ **Navigation:** ► **Balance menu** > ⚙ **Settings** > ⚖ **Balance** > ⚖ **Q_W Weighing / Quality**

- 1 Navigate to the section **Q_W Weighing / Quality**.
- 2 Tap **Automatic weight value output**.
- 3 Tap **Output mode** and select **Results**.
- 4 Tap **Target** and select **HID**.
- 5 Review the rest of the settings in the section **Automatic weight value output** to customize the output, for example, to add the date and time to each weighing result.

Note

The right settings are highly dependent on your application. For example, when using an Excel sheet as the target, values separated with the character **TAB** will be placed in separate cells.

Editing the method settings

≡ **Navigation:** ▼ **Methods** > ⌘ **Methods list**

- A method **General weighing** exists.
 - 1 Select the method from the **Methods list**.
 - 2 Tap  **Edit**.
 - 3 Tap  **Print / Export**.
 - 4 Tap **Strip printout and data export**.
 - 5 Set **Weight value** to **Active**.
 - 6 Tap  **OK**.
 - 7 Tap  **Save**.
- ➔ The method is set up to send the results to the computer when tapping **Add result**.

Running the method

- The USB driver is installed on the computer.
- 1 Select the method from the **Methods list**.
- 2 Tap ► **Start method**.
- 3 Perform the necessary actions to weigh your sample.
- 4 Open an Excel sheet and place the cursor in a first target cell, for example, "A1".
- 5 Tap  **Add result**.
 - ➔ The weighing result is saved to the **Results list**.
 - ➔ The weighing result is stored in cell "A1" of your Excel sheet.
 - ➔ If the character **TAB** is used as delimiter, the other weighing parameters are stored in cells "B1", "C1", etc.
 - ➔ If the character **Enter** is used to mark the end of the line, the cursor now appears in cell "A2".

5.8.3 Exporting and importing settings

The settings of the balance can be exported and imported. Transferring data from one balance to another is helpful, for example, to use the same method on several balances. It is also good practice to store the balance settings as backup before updating the software.

The following data can be imported and exported:

- **Balance settings**
 - When importing these settings, the GWP status of the balance might change (**GWP Approved mode**).
 - The balance might prompt to reboot.
- **User management**
 - When importing these settings, the existing settings on the balance are replaced.
- **Methods**
 - When importing methods, you can select if all methods or only selected methods are imported.
 - If importing a method with the same name as an existing method, you can select if you want the method to be overwritten or not.
- **Tests and weights**
 - When importing these settings, all the existing tests and test weights on the balance are erased and replaced by the imported data.

The data can be transferred via a USB storage device. For XPR balances, the data can also be transferred via a file server.



NOTICE

Data import can cause data loss

Importing data can delete user application data without warning.

5.8.3.1 Transferring test weight settings between balances

This example shows how to export test weight settings from one balance and import them on another balance. This procedure is particularly helpful if you are using the same calibrated weights to perform tests on several balances. The data is transferred using a USB storage device.

Exporting data and settings

≡ **Navigation:** ► **Balance menu** > **Maintenance** > **Import / Export**

- A USB storage device is connected to the balance.
- 1 Navigate to the section **Import / Export**.
 - ➔ The dialog **Import / Export** opens.
- 2 Select **Export data and settings** and tap → **Next**.
 - ➔ The dialog **Export data and settings** opens.
- 3 Deactivate all data types except **Tests and weights**.
- 4 Tap ✓ **Export**.
 - ➔ A list of available USB storage devices is shown.
- 5 Select the target USB storage device to store the data.
- 6 Tap → **Next**.
 - ➔ The system exports the data to the USB storage device.
 - ➔ If the export was successful, the display shows ✔ with the name of the file and the target folder.
- 7 Tap ✕ **Close** to finish the process.

Importing data and settings

≡ **Navigation:** ► **Balance menu** >  **Maintenance** >  **Import / Export**

- A USB storage device containing the data to import is connected to the balance.
- 1 Navigate to the section  **Import / Export**.
 - ➔ The dialog **Import / Export** opens.
- 2 Select  **Import data and settings** and tap → **Next**.
 - ➔ A list of available USB storage devices is shown.
- 3 Select the USB storage device containing the data to import.
- 4 Tap → **Next**.
- 5 Select which file you want to import.
- 6 Tap → **Next**.
- 7 To import only the test weights, select the data type **Test weights**.
- 8 Tap ✓ **Import**.
 - ➔ The system imports the data from the USB storage device.
 - ➔ If the import was successful, the message **Import of data and settings has been executed.** appears.
- 9 Tap ✕ **Close** to finish the process.

5.9 User management



NOTICE

Loss of data due to missing password or User name

Protected menu areas cannot be accessed without **User name** or password.

- Note **User name** and password and keep them in a safe place.

5.9.1 Activating the user management

≡ **Navigation:** ► **Balance menu** >  **Settings** >  > **Balance** >  **General** > **User management**

The user management is disabled in the factory settings. To activate the user management follow:

- 1 Tap ⓘ and select **Active**.
 - ➔ The dialog **Activate user management** opens.
- 2 Tap → **Next**.
 - ➔ The dialog  **Set administrator password (optional)** opens.
- 3 Tap **New password** and enter the new password.
- 4 Confirm the new password again and tap ✓ **OK**.
 - ➔ The dialog closes.
- 5 Confirm the activated user management in the section **General**, tap ✓ **OK**.
 - ➔ The **User management** is active. The login dialog opens at every system start.

5.9.2 Disabling the user management

≡ **Navigation:** ► **Balance menu** >  **Settings** >  > **Balance** >  **General** > **User management**

- 1 Tap ⓘ and select **Inactive**.
 - ➔ The dialog **Deactivate user management** opens.
- 2 Tap → **Next**.
 - ➔ The dialog  **Set unblocking password** opens.
- 3 Tap **New password** and enter the new password.
- 4 Confirm the new password again and tap ✓.

- ➔ The dialog closes.
- 5 Tap **OK** to confirm.
- ➔ The user management is inactive.

5.9.3 Managing users and user groups

The **Users** settings are only visible when the **User management** is set to **Active**.

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

Printing user list

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

See also

Activating the user management ▶ Page 87

5.9.3.1 Creating a new user

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

- 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 name** opens.
- 9 Tap **OK** to confirm the defined user profile.
- ➔ The user has been created. The new user profile appears in the list.

5.9.3.2 Creating a new group

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

Note

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

- 1 Tap **New group**.
 - ➔ The dialog opens.
- 2 Define the group properties.
- 3 Tap **OK**.
- ➔ The group has been created, the system returns to the list of defined groups.

5.9.3.3 Deleting users or user groups

Requirements for deleting:

- You logged in as administrator.

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

- 1 Select the **User name** of the user to delete.
 - ➔ The user management dialog opens.
- 2 Tap **Delete** in the action bar.

- ➔ The dialog **Delete user** opens.
- 3 To delete the user tap ✓ **OK**.
- ➔ The user is deleted irreversibly.

5.10 Tolerance profiles

≡ **Navigation:** ▶ **Balance menu** > ⚙ **Settings** > ⚖ **Balance** > ⚖ **Weighing / Quality** > **Tolerance profiles**

Creating a Tolerance profile

- 1 Tap + **New** to create a new profile.
- 2 Define the profile settings.
- 3 When all the settings have been defined, tap ✓ **OK**.
 - ➔ The system returns to the profile list and the new profile appears on the list.

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

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

5.11 Password protection and balance reset

5.11.1 Password protection

If user management is active, each user has an individual password.

- Any logged in user can change his own password. See [Changing a password ▶ Page 89].
- Users with permission to configure user management can change the password of any user. See [Changing a password ▶ Page 89].
- If a user with permission to configure user management has forgotten his password (and no other user can change it), a password reset can be requested. See [Requesting a reset password ▶ Page 90]

Note

If the parameter **Password reset** is set to **Not allowed**, the balance needs to be reset by a service technician.

If user management is inactive, a password can be generated to block the whole balance. See [Creating an unblocking password ▶ Page 90].

5.11.1.1 Changing a password

Any user can change its own password. Additionally, users with permission to configure user management can change the password of other users.

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

- 1 Select the **User name** for which the password should be changed.
 - ➔ The user management dialog opens.
- 2 Tap  **Change password** in the action bar.
 - ➔ The dialog **Change password** opens.
- 3 Enter a new password and confirm it.
 -  **Note**
 - Any password is valid.
- 4 Tap ✓ **OK**.
 - ➔ The password has been changed.

5.11.1.2 Requesting a reset password

If a user with the permission to configure user management has forgotten his password, a reset password can be requested.

- The balance login dialog is open.
- 1 Select the user who needs a password reset. That user needs to have the permission to configure user management.
- 2 Tap **⋮ More**.
 - ➔ The dialog **More** opens.
- 3 Tap **↶ Request reset password**.
- 4 The dialog **Request reset password** opens.
- 5 Note the service code and tap **✉ Service request**.
 - ➔ Information about your METTLER TOLEDO service representative appears.
- 6 Contact your METTLER TOLEDO service representative via phone or email.
 - ➔ You get an 8-character reset password with which you can log in once.
- 7 Log in with your reset password and select a new password.

5.11.1.3 Creating an unblocking password

If the user management is inactive, the balance can still be blocked with a unique password, called the unblocking password. This password first need to be generated and needs to be provided to block and unblock the balance.

≡ **Navigation:** ▶ **Balance menu** > **⚙ Settings** > **⚖ Balance** > **⚙ General**

- 1 To create an unblocking password, tap **🔑 Unblocking password** in the action bar.
 - ➔ The dialog **Set unblocking password** opens.
- 2 Set a new password, confirm it, and tap **✓ OK**.
- 3 In the dialog **⚙ General**, tap **✓ Save** and **✓ OK**.
 - ➔ The unblocking password is created.

5.11.2 Logging in and logging out

If the user management is active, users need to log in to use the balance.

5.11.2.1 Logging in

- The balance login dialog is open.
- 1 Select a user and enter the password.
- 2 Tap **👤 Login**.
 - ➔ You are logged in and your user name is displayed on the main weighing screen.

5.11.2.2 Logging out

Navigation: ▶ **Balance menu** > **🔒 Exit/ Block balance**

- Tap **👤 Logout**.
 - ➔ You are logged out.

5.11.3 Blocking and unblocking the balance

A blocking means closedown of the balance. A reason for such "full blocking" can have a serious background. If the balance has a defect or a loss of the weighing quality, the user can block the balance completely.

If user management is active, users can block the balance if they have the related permission.

If user management is inactive, the balance can still be blocked to prevent any further usage of the balance. If no unblocking password has been set, the balance can get blocked and unblocked without a password. If an unblocking password has been set, the balance can only get blocked and unblocked using this password. See [Creating an unblocking password ▶ Page 90].

5.11.3.1 Blocking the balance

≡ **Navigation:** ▶ **Balance menu** >  **Blocking**

- 1 To block the balance, tap  **Block balance**.
➔ The dialog **Block balance** opens.
- 2 Tap → **Next**.
- 3 Enter your unblocking password and tap  **Block balance**.
➔ The balance is blocked and the blocking screen appears.

5.11.3.2 Unblocking the balance

- The balance is blocked and the blocking screen is open.
- 1 Tap  **Unblock balance**.
 - 2 Type in the unblocking password, if applicable.
 - 3 Tap  **Unblock balance** to confirm.
By tapping  **Cancel** instead, the main weighing screen appears, but the balance is still blocked and only a limited number of settings can be edited.
➔ The balance is unblocked and the main weighing screen appears.

5.11.4 Resetting the balance

When user management is active, only users with the appropriate permissions can reset the balance.

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



NOTICE

Reset causes data loss

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

- 1 To delete the change history data and the data for test history and adjustment history, activate the option **Also delete change, test and adjustment history**.
- 2 Tap → **Next**.
➔ The window **Reset balance** opens and warns that some data will be lost by resetting the balance.
- 3 Tap  **Reset balance**.
➔ The balance software restarts in factory state. The alibi memory settings and alibi entries remain unchanged.

5.12 Automated dosing

Automated dosing methods, namely **Automated dosing** and **Automated solution prep.**, can only be performed on XPR analytical automatic balances. However, any XPR balance connected to an RFID reader can be used to read/edit the data from any dosing head.

5.12.1 Managing the dosing head data

Each dosing head includes an RFID tag that can exchange data with the instrument. You can remove the dosing head and insert it into another dosing module or liquid module, where the data is immediately available.

Note

The data on the RFID tag of the dosing head can also be managed by any XPR balance equipped by an external RFID reader.

≡ **Navigation:** ▼ **Methods** >  **Manual operations** >  **Manage dosing head data**

Editing the dosing head data

- 1 Tap  **Manage dosing head data**.
 - ➔ The dialog box opens in which the dosing head data is displayed.
- 2 Tap  **Edit** to edit the data of the attached dosing head.
- 3 Tap  **OK** to save the data.

Copying the dosing head data

The data stored on a dosing head can be copied to another dosing head with this function. Re-entering all the required data on a new dosing head with the same or similar substances is not necessary.

- A first dosing head, from which data will be copied, is attached to the dosing or liquid module.
- A second dosing head, on which the data will be saved, is available.

- 1 Tap  **Manage dosing head data**.
 - ➔ The dialog box opens in which the dosing head data is displayed.
- 2 Tap  **Copy** to copy the data of the attached dosing head.
- 3 Follow the instructions from the wizard.

Available fields for dosing head data

Depending on the type of dosing head, the following data is stored on the RFID tag.

Parameter	Description	Values
Substance	Specifies the name of the substance.	Text (0...20 characters)
Lot ID	Defines the batch identification.	Text (1...15 characters)
Verify expiry date before dosing	Defines whether the expiry date is verified before dosing.	Active Inactive*
Expiry date	Specifies the expiry date of the substance.	Date
Set the filling date	Defines whether the filling date must be specified.	Active Inactive*
Filling date	Specifies the date when the dosing head was filled.	Date
ID 1 field label... ID 3 field label	Defines the label of the user-defined fields.	Text (0...10 characters)
ID 1 value...ID 3 value	Defines the values of the user-defined fields.	Text (0...15 characters)
Molar mass	Defines the molar mass of the substance.	Numeric (1...10000 g/mol)
Purity	Defines the purity of the substance.	Numeric (0.001...100%)
Density	Defines the liquid density. This field is only available for liquid dosing heads.	Numeric (1 g/ml* 0.01...10 g/ml)
Verify quantity before dosing	Defines whether the remaining quantity in the dosing head is verified before dosing.	Active Inactive*
Remaining quantity	Residual quantity of substance in the dosing head. When filling the dosing head, insert the weight of the substance in this field. To use the weight on the weighing pan, tap  .	Numeric (0.01...999999 mg)
Verify dose limit before dosing	Defines whether the dose limit of the dosing head is verified before dosing. This field is only available for powder dosing heads.	Active* Inactive

Remaining doses	Shows the number of dosing operations still available with this dosing head, before reaching the Dose limit . The Remaining doses is calculated based on the Dose limit and the Number of total dosages . This field is only available for powder dosing heads. It is only available when Verify dose limit before dosing is set to Active	Numeric
Dose limit	Specifies the maximum number of dosing operations with this dosing head. This field is only available for powder dosing heads.	Numeric (250* 0... 50000)
Number of total dosages	Shows the number of dosing operations performed with this dosing head until now. This field is only available for powder dosing heads. It is only available when Verify dose limit before dosing is set to Active .	Numeric
Tapping while dosing	Activates the automatic start of the taper during dosing. Note that tapping can lead to compacting effects with some powders. This field is only available for powder dosing heads.	Active* Inactive
Tapping before dosing	Activates the automatic start of the taper before each dosing. Note that tapping can lead to compacting effects with some powders. This field is only available for powder dosing heads.	Active Inactive*
Pump pressure	Defines the pump pressure for the liquid dosing operation. This field is only available for liquid dosing heads.	0.3 0.4 0.5 bar*
Dosing head type	Shows the type of the dosing head.	Text
Dosing head ID	Shows the unique ID of the dosing head.	Text

* Factory setting

5.12.2 Changing the pump pressure

The pump pressure can be adjusted, depending on the liquid and dosing head used. The pump pressure is saved as a setting on the dosing head, see [Managing the dosing head data ► Page 91].

6 Software Description

6.1 Balance menu settings

The **Balance menu** contains general settings and information. To open the section **Balance menu** tap the tab with the symbol  on the left side of the screen.

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

-  **Leveling aid**, see [Leveling aid ▶ Page 94]
-  **History**, see [History ▶ Page 94]
-  **Balance info**, see [Balance info ▶ Page 97]
-  **Users** (only appears when user management is activated), see [Users ▶ Page 97]
-  **Settings**, see [Settings ▶ Page 99]
-  **Maintenance**, see [Maintenance ▶ Page 110]

6.1.1 Leveling aid

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

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

Note

After leveling the balance an internal adjustment must be performed.

See also

 Leveling the balance ▶ Page 42

6.1.2 History

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

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

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

-  **Adjustments**
-  **Tests**
-  **Alibi memory** (only available for specific balance models)
-  **Service**
-  **Changes** (only appears when change history is activated)

6.1.2.1 Adjustments

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

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

Button	Name	Description
	Filter	Tap to filter the list: • By date range • By user name
	Print	Tap to print the displayed entries.
	Close	Tap to return to the section History .

6.1.2.2 Tests

≡ **Navigation:** ► **Balance menu** >  **History** >  **Tests**

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

Button	Name	Description
	Filter	Tap to filter the list: • By date range • By user name
	Print	Tap to print the displayed entries.
	Close	Tap to return to the section History .

6.1.2.3 Alibi memory

The alibi memory is a tamper-proof data storage device on which weighing data subject to legal control is automatically stored and accessible for a period of time. An alibi memory device operates according to the principle of a "ring" memory: when the capacity limit of the data records and the retention period are reached, the oldest data record in the memory is automatically overwritten by the new data record.

As soon as a result is generated by the balance, it will be stored in the alibi memory of the balance, if the feature is activated. Access to the alibi memory on the balance is provided in stand-alone mode only.

The combination of **Alibi record ID** and **Bridge serial number** ensures the uniqueness of an alibi memory entry. The balance also defines a retention period describing the minimum amount of time during which the results must be stored in the alibi memory. As soon as the retention period for specific alibi entries is exceeded, the balance can reuse these memory slots for new entries.

The alibi memory is only available for specific balance models and needs to be activated by a service technician. Contact your METTLER TOLEDO representative for more details.

When the alibi memory is activated, an alibi record is generated for each result added to the **Results list**. Each alibi record contains the following information:

- **Bridge serial number**
- **Alibi record ID**
- **Date/time**
- **Net weight**
- **Tare weight**
- **Tare weight status**
- **Verification**

Note

When the **Weight capture mode** is set to **Immediate**, alibi records are only created for stable results.

≡ **Navigation:** ► **Balance menu** >  **History** >  **Alibi memory**

A maximum of 500'000 entries can be stored in the alibi memory. When the maximum number of entries is reached and no entries are older than the retention period, no new result can be added to the **Results list**. This can be fixed in service mode, where alibi records can be deleted or the retention period can be shortened.

Button	Name	Description
	Filter	Tap to filter the list: • By date range • By record ID range

Button	Name	Description
	Print	Tap to print the displayed entries.
	Export	Tap to export the displayed entries.
	Show alibi memory status	Tap to show information about the alibi memory status: • Used memory • Number of remaining records • Retention period • Oldest records • Newest records
	Alibi memory retention period	The retention period is the minimum period during which the alibi records are stored in the alibi memory. The retention period can range from 1 to 365 days, with a default value of 100 days. It can be edited in service mode.
	Close	Tap to return to the section History .

6.1.2.4 Service

≡ **Navigation:** ► **Balance menu** >  **History** >  **Service**

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

Button	Name	Description
	Filter	Tap to filter the list: • By date range • By technician
	Print	Tap to print the displayed entries.
	Close	Tap to return to the section History .

6.1.2.5 Changes

The function **Change history** is an administration tool to improve the traceability 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.

≡ **Navigation:** ► **Balance menu** >  **History** >  **Changes**

Change history is deactivated in the factory settings. To activate **Change history**, see Weighing / Quality.

A maximum of 5000 entries can be stored in the change history.

Button	Name	Description
	Filter	Tap to filter the list: • By date range • By user name

Button	Name	Description
	Print	Tap to print the displayed entries.
	Close	Tap to return to the section History .

6.1.3 Balance info

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

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

- **Identification**
- **Hardware**
- **Software**
- **Maintenance**

Button	Name	Description
	License agreement	Tap to open the licence agreement.
	Close	Tap to return to the Balance menu .

6.1.4 Users

In the section **Users**, rights for users and user groups can be defined. Users can be assigned to user groups. When the user management is active, the login dialog opens at every system start.

The **Users** settings are only visible when the **User management** is set to **Active**.

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

The section **User management** is divided into the following subsections:

-  **General**: settings for all users
-  **Users**: settings for individual users
-  **Groups**: settings for user groups

An unlimited number of users can be created. A user is always a part of a user group and has the permissions of the group in which he is. Which user has which permissions can be defined or changed by users with the appropriate permission rights.

See also

 Activating the user management ▶ Page 87

6.1.4.1 General

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

Parameter	Description	Values
Automatic logout	Defines if the user is automatically logged out after a predefined Wait time .	Active* Inactive
Wait time	Defines after how long the user automatically gets logged out when no activity is recorded on the balance. This setting is only available if Automatic logout is set to Active .	Numeric (15 minutes* 1...60 minutes)

User proposals	Defines if a list of users appears on the login screen. Active: A list of all users appears, from which a User name can be selected. Inactive: The user needs to type in his User name by hand at login.	Active* Inactive
Password reset	Defines if the password can be reset from the login screen. If set to Not allowed and the password is lost, a new password cannot be requested. The balance needs to be reset and all data and settings will be lost.	Allowed* Not allowed

* Factory setting

6.1.4.2 Users

Navigation: ► Balance menu >  Users >  Users

Parameter	Description	Values
User name	Defines a unique identifier for the user. When the user profile has been defined, the value for User name will be fixed and cannot be changed afterwards.	Text (1...22 characters)
Last name	Defines the last name of the user.	Text (0...22 characters)
First name	Defines the first name of the user.	Text (0...22 characters)
Active	Activates or deactivates the current user.	Active* Inactive
Assigned groups	Assigns user to user groups.	List of defined groups
User language	Defines the language of the user profile.	Available languages

* Factory setting

An unlimited number of users can be created. A user is always a part of a user group and has the permissions of the group in which he is. Which user has which permissions can be defined or changed by users with the appropriate permission rights.

6.1.4.3 Groups

Navigation: ► Balance menu >  Users >  Groups

Note

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

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

General permissions

Parameter	Description	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: • create new methods • edit methods • delete methods • lock or unlock methods • import or export methods	Active Inactive

Execute service commands	Defines if the group is allowed to: • access service function • block/unblock the balance • view adjustment state • generate support files	Active Inactive
Configure system	Defines if the group is allowed to: • modify system settings • import system settings • configure peripherals • perform software updates • perform application or factory settings	Active Inactive
Configure user management	Defines if the group is allowed to: • print or export/import user management settings • modify user management settings • enable or disable user management	Active Inactive
Cancel task	Defines if the group is allowed to cancel a task during the execution of a method.	Active Inactive
Exclude / Overwrite result	Defines if the group is allowed to exclude or overwrite results in the Results list .	Active Inactive
Reset the time span statistics	Defines if the group is allowed to: • reset the time span statistics when using the method SQC	Active Inactive

Quality management permissions

Parameter	Description	Values
Start external adjustment	Defines if the group is allowed to perform external adjustments.	Active Inactive
Show change history	Defines if the group is allowed to see the Change history .	Active Inactive
Configure routine tests / GWP	Defines if the group is allowed to: • configure routine tests • import or export routine tests • configure and import test weights • configure tolerance profiles • activate/deactivate the GWP approval mode	Active Inactive
Start routine tests	Defines if the group is allowed to perform routine tests.	Active Inactive

The settings related to the screen brightness and the sound can be edited by all users and changes are applied to all users. Any user can set a user-specific language for the balance interface without influencing the settings of other users.

6.1.5 Settings

This section describes the settings of the balance that can be changed to suit specific requirements. The balance settings apply to the entire weighing system and to all users.

Navigation: ► Balance menu > ⚙ Settings

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

-  **Balance**
-  **Interfaces**
-  **Devices / Printers**

-  LabX / Services

6.1.5.1 Balance

≡ Navigation: ► Balance menu > ⚙ Settings > ⚖ Balance

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

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

Weighing / Quality

≡ Navigation: ► Balance menu > ⚙ Settings > ⚖ Balance >  Weighing / Quality

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

Change history	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: • User ID and timestamp • Object identifier • Old values and new values of attributes A maximum of 5000 entries can be stored in the change history. For more information see [Changes ► Page 96].	Active Inactive*
Balance recalib. 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 due date the recalibration reminder is shown. This setting is only available if Balance recalib. reminder is set to Active.	Numeric (30 days* 0...400 days)
Action when calib. expired	Defines the action when the calibration has expired. Block: The balance will be blocked. In this case, the balance cannot be used anymore until a user unblocks the balance. If User management is Active, only users with the appropriate rights can unblock the balance.	None* Block
Days before blocking	Defines the number of days before the reminder informs about the upcoming expiry date.	Numeric (30 days* 0...400 days)
Weight recalib. 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 due date the recalibration reminder is shown. This setting is only available if Weight recalib. reminder is set to Active.	Numeric (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 due date the service reminder is shown. This setting is only available if Service reminder is set to Active.	Numeric (30 days* 0...400 days)

* Factory setting

Tolerance profiles

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

For more information about creating tolerance profiles, see [Tolerance profiles ► Page 89]

Parameter	Description	Values
Name	Defines the name of the profile.	Text (0...22 characters)
Indicator	Defines the color of the indicator icon for the tolerance profile. The icon will appear above the weighing value unit. When a color is selected, a description of maximum 3 characters can be added.	None* Neutral White Yellow Red Blue Green Black
Indicator text	Defines the text of the indicator icon.	Text (0...3 characters)
Calibration certificate	Selects a calibration certificate from a drop-down list of certificates available on the balance. New certificates can only be created by a service technician based on a performed balance calibration.	Calibration certificate None*

Environment	Defines the environmental conditions of the balance. Very stable: For an environment that is free from any drafts and vibrations. Stable: For an environment that is practically free from drafts and vibrations. Standard: For an average working environment subject to moderate variations in the ambient conditions. Unstable: For an environment where the conditions are from time to time changing. Very unstable: For an environment where the conditions are continuously changing.	Very stable Stable Standard* Unstable Very unstable
Weighing mode	Defines the filter settings of the balance. Universal: For all standard weighing applications. Sensor mode: Depending on the setting of the ambient conditions, this setting delivers a filtered weighing signal of varying strength. The filter has a linear characteristic in relation to time (not adaptive) and is suitable for continuous measured value processing. Dynamic: The dynamic weighing function determines the weight of a moving sample.	Universal* Sensor mode Dynamic
Value release	Defines the speed at which the balance regards the measured value as stable and available for capture. Very fast: recommended if you require fast results and repeatability is not very important. Very reliable: provides very good repeatability of the measured results but prolongs the stabilization time. Some intermediate settings can also be chosen from.	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: 2 times smaller resolution 5d: 5 times smaller resolution 10d: 10 times smaller resolution 100d: 100 times smaller resolution 1000d: 1000 times smaller resolution For approved balances, the values available for this setting depend on the balance model.	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. For approved balances, the values available for this setting depend on the balance model.	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 computer with a USB cable. Weighing results can then be directly transferred to a target application, e.g., Microsoft Excel.

Parameter	Description	Values
Output mode	Defines which weighing values are transferred via the communication interface, e.g., USB, Ethernet. Results: The weighing values are transferred only when they are added to the Results list. Continuous: The weighing values are transferred continuously via the interface defined under LabX / Services > MT-SICS. Additional fields are available, depending on the chosen option.	Results* Continuous
Target	Defines the way the weighing values are transferred. HID (Human Interaction Device): Transfers simple character streams (e.g. weight values) to a desktop computer without installing additional drivers (comparable to a keyboard). The format of a transferred weighing value can be configured. MT-SICS: The data is transferred in MT-SICS format (METTLER TOLEDO Standard Interface Command Set). MT-SICS operates bidirectional, i.e. usually balance sends the confirmations to the host and receives commands. A separate reference manual is available for MT-SICS. HID / MT-SICS: The data is transferred in HID and MT-SICS format in parallel. MT-SICS configurable: The data is transferred in a user-defined MT-SICS format. This setting is only available if Output mode is set to Results.	HID* HID / MT-SICS MT-SICS MT-SICS configurable
Result ID 1 Result ID 2	Defines if the fields Result ID 1 and Result ID 2 are included in the output, respectively. Supported characters are: • numbers: 0 – 9 • letters: a – z and A – Z • special characters: space, dot, comma, semicolon, plus, minus Non-supported characters will be replaced by a space. This setting is only available if Output mode is set to Results.	Active Inactive*
Date	Defines if the field Date is included in the output. The format of the date is YYYY-MM-DD. This setting is only available if Output mode is set to Results.	Active Inactive*
Time	Defines if the field Time is included in the output. The format of the time is hh-mm-ss. This setting is only available if Output mode is set to Results.	Active Inactive*
Net indicator	In the standard output format, net weights are not specially marked. To place an N in front of net weights, this function can be activated. The net symbol is left-justified in the field. This setting is only available if Output mode is set to Results.	Active Inactive*
Net indicator field length	Defines the field length of the Net indicator. This setting is only available if Output mode is set to Results and Net indicator is set to Active.	Numeric (2* 1...2)

Weight field length	Defines the number of digits that will be transferred into the application on the computer, e.g., into an Excel field. This setting is only available if Output mode is set to Results .	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. This setting is only available if Output mode is set to Results .	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. This setting is only available if Output mode is set to Results .	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. This setting is only available if Output mode is set to Results .	, .*
Unit	Defines if a weighing unit is being shown in the weighing field. This setting is only available if Output mode is set to Results .	Active* Inactive
Unit field length	Defines the field length of the weighing unit. This setting is only available if Output mode is set to Results and Unit is set to Active .	Numeric (1* 1...6)
Field delimiter	Defines a character or sequence of characters to separate data fields. This setting is only available if Output mode is set to Results .	None Space* TAB , ;
End of line character	Defines a character or sequence of characters signifying the end of a line. This setting is only available if Output mode is set to Results .	CRLF CR LF TAB None Enter*
Updates/sec.	Defines the rate at which data is transferred. This setting is only available if Output mode is set to Continuous .	2 5 6* 10
Format	Defines the format of the transferred data. This setting is only available if Output mode is set to Continuous .	MT-SICS* PM AT/MT

* Factory setting

Date / Time / Language / Format

Navigation: ► Balance menu > ⚙ Settings > ⚖ Balance > 🌐 Date / Time / Language / Format

Parameter	Description	Values
Date	Defines the current date.	Date
Time	Defines the current time. Use the plus/minus buttons 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	Selects a time zone. When the time zone is set, the balance changes automatically between summer and winter time.	see list on the screen

Date format	Selects the date format.	D.MMM.YYYY* MMM D YYYY DD.MM.YYYY MM/DD/YYYY YYYY- MM-DD YYYY/MM/DD YYYY年M月D日
Time format	Selects 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
System defaults	Defines the default settings that are applied for newly created users. This setting is only available if User management is set to Active .	

* Factory setting

Screen / StatusLight / Sound

Navigation: ► Balance menu > ⚙ Settings > ⚖ Balance > *🔊 Screen / StatusLight / Sound

Parameter	Description	Values
Screen brightness	Defines the brightness of the display.	20 % 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 StatusLight . Active (without green light): All current status of the balance are monitored, the red/yellow lights will turn on if needed, but the green light will stay turned off. StatusLight is red: Error. The balance must not be used until the error is corrected. StatusLight is yellow: Warning. For example, the test manager has pushed a test to the balance or you are operating the balance between the date of the calibration reminder and the scheduled date of the next calibration. The balance can still be used. StatusLight is green or off: Ok. No problems detected and the balance is ready to weigh.	Active* Active (without green light) Inactive
StatusLight brightness	Defines the brightness of the activated StatusLight . This setting is only available if StatusLight is set to Active or Active (without green light) .	20 % 40 % 60 %* 80 % 100 %

* Factory setting

General

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

Parameter	Description	Values
Balance ID	Defines the ID of the balance. This name could be used to communicate with the balance over a network. No space or special characters are allowed.	Text (0...22 characters)
Standby	Defines if the balance automatically enters standby mode after not being used for a predefined Wait time . If User management is active, the user will be automatically logged out when the balance switches to standby mode. The standby mode can always be started manually by pressing  .	Active* Inactive
Wait time	Defines after how long the balance automatically switches to standby mode when not used. This setting is only available if Standby is set to Active .	Numeric (10 minutes* 0...60 minutes)
Software update on system start-up	With this option activated, software update can be performed from a USB storage device on startup.	Active* Inactive
Automatic export directory	Defines the target directory for the automatic export. The possibility to export to File server is only available if a File server is configured (see [LabX / Services ► Page 109]).	USB storage device* File server
User management	Activates/Deactivates the User management .	Active Inactive*

* Factory setting

6.1.5.2 Modules / Dosing

Navigation: ► Balance menu > ⚙ Settings > ⚖ Modules / Dosing

Dosing module / Dosing head

Parameter	Description	Values
Dosing head label	Defines the template of the dosing head label to be printed, i.e., which data is included on the label and in which format. This section contains several settings that are described in the table Dosing head label below.	

Dosing head label

Parameter	Description	Values
Copies	Defines how many copies of the label are printed.	Numeric
Used template	Chooses the label template.	Available labels are shown below.

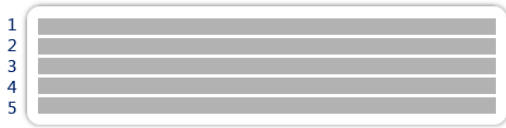
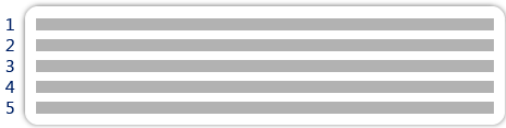
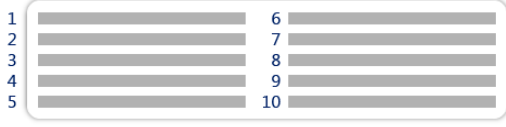
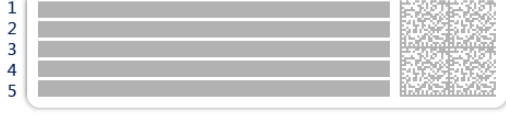
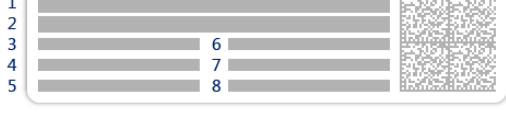
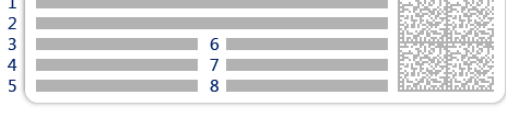
Field settings

The content of each label field can be defined individually.

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

Available labels

The following label layouts can be selected:

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

6.1.5.3 Interfaces

Navigation: ► Balance menu > ⚙ Settings > 📶 Interfaces

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

- 🌐 Ethernet
- 📶 Bluetooth

Ethernet

The **Ethernet** interface allows to connect the balance to a network in order to:

- store weighing results as XML files on a share folder
- communicate remotely with the balance using the MT-SICS communication protocol or LabX

Navigation: ► Balance menu > ⚙ Settings > 📶 Interfaces > 🌐 Ethernet

Parameter	Description	Values
Host name	Defines the balance host name.	Text (1...22 characters)

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 settings of the Ethernet connection will be automatically set. Manual: The settings of 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 that is used by the TCP/IP protocol to determine whether a host is on the local subnet or on a remote network.	000.000.000.000... 255.255.255.255
DNS server (primary)	Defines the address of the primary DNS (domain name system) server.	000.000.000.000... 255.255.255.255
DNS server (secondary)	Defines the address of the secondary DNS server.	000.000.000.000... 255.255.255.255
Default gateway	Defines the address of the default gateway that links the host's subnet to other networks.	000.000.000.000... 255.255.255.255

* Factory setting

Bluetooth

Navigation: ► Balance menu > ⚙ Settings > 📶 Interfaces > 📶 Bluetooth

Bluetooth identification

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

* Factory setting

6.1.5.4 Devices / Printers

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

This section is divided into the following subsections:

- 🖨 Printer
- 📊 Barcode reader
- 📶 RFID reader
- 🎧 ErgoSens
- 🦶 Foot switch

Printer

Navigation: ► Balance menu > ⚙ Settings > 🖨 Devices / Printers > 🖨 Printer

Printer settings

Parameter	Description	Values
Printer category	Defines the type of the printer. Strip printer: to print weighing results on strip paper Label printer: to print weighing results on labels	Strip printer Label printer*
Device	Allows to activate or deactivate the device.	Activated* Deactivated
Line end	Defines the line end character for printing. The values set here have to match the printer settings. This setting is only available for strip printers.	<CR> <LF>* <CR> <LF>

Character set	Defines the communication specific character code. The values set here have to match the printer settings. This setting is only available for strip printers.	ANSI/WIN I IBM/DOS I UTF8*
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* Factory setting

Barcode reader

≡ **Navigation:** ▶ Balance menu > ⚙ Settings > 🖨 Devices / Printers > 📊 Barcode reader

Once connected to a USB port of the balance, the device is automatically recognized. The settings can be consulted here.

RFID reader

≡ **Navigation:** ▶ Balance menu > ⚙ Settings > 🖨 Devices / Printers > 📶 RFID reader

Once connected to a USB port of the balance, the device is automatically recognized. The settings can be consulted here.

ErgoSens

≡ **Navigation:** ▶ Balance menu > ⚙ Settings > 🖨 Devices / Printers > 🎧 ErgoSens

Parameter	Description	Values
Function	Defines which function is to be executed when triggering the device.	None* I Zero I Tare I Add result

* Factory setting

Foot switch

≡ **Navigation:** ▶ Balance menu > ⚙ Settings > 🖨 Devices / Printers > 🦶 Foot switch

Parameter	Description	Values
Function	Defines which function is to be executed when triggering the device.	None* I Zero I Tare I Add result

* Factory setting

See also

- 🔗 Printer ▶ Page 72
- 🔗 Barcode reader ▶ Page 76
- 🔗 RFID reader ▶ Page 77
- 🔗 Foot switch and ErgoSens ▶ Page 79

6.1.5.5 LabX / Services

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

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

≡ **Navigation:** ▶ Balance menu > ⚙ Settings > 🌐 LabX / Services

Parameter	Description	Values
LabX service	Inactive: No connection to LabX will be established. Network: A network connection to LabX will be established on startup. The Port must be specified. USB: A USB connection to LabX will be established on startup.	Inactive* I Network I USB

MT-SICS service	Inactive: No MT-SICS port will be opened. Network: An MT-SICS network port will be opened on startup. The Port must be specified. USB: An MT-SICS USB port will be opened on startup.	Inactive* Network USB
Web service	If set to Active , a network port will be opened on startup. Use the menu Web service configuration to configure the service. The complete Web service documentation is available online: ▶ www.mt.com/labweighing-software-download .	Inactive* Active
File server	Allows to define a file server to import/export data. If set to Active , use the menu File server configuration to configure the server.	Active Inactive*

* Factory setting

See also

- [🔗 LabX service ▶ Page 80](#)
- [🔗 MT-SICS service ▶ Page 81](#)
- [🔗 Web service ▶ Page 82](#)
- [🔗 Data management ▶ Page 83](#)

6.1.5.6 Printing the settings

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

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

- To print the balance settings, tap 🖨️ **Print the settings**.
 - ➡ The complete balance settings are printed.

6.1.6 Maintenance

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

The option **Maintenance** only appears if the user has the appropriate user rights.

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

- 📁 **Import / Export**
- 📶 **Format RFID**
- 🔄 **Software update**
- ↺ **Reset**
- 🔧 **Service menu**

See also

- [🔗 Data management ▶ Page 83](#)
- [🔗 RFID reader ▶ Page 77](#)
- [🔗 Software update ▶ Page 183](#)
- [🔗 Resetting the balance ▶ Page 91](#)

6.1.6.1 Service menu

Navigation: ► Balance menu > Maintenance > Service menu

Icon	Name	Description
  	Device errors	Tap to display the code of an error. This error code can be useful in your communication with METTLER TOLEDO when troubleshooting your device. The icon depends on the severity of the error: critical error, warning, or information. The icons of device errors only appear when an error with an error code is ongoing on the device.
	Show adjustment state	Tap to open information about: • Prescaler • Temperature compensation • Production linearization • Standard calibration • Production calibration • User linearization • User calibration
	Save support file	Tap to save support file (all relevant information to an error) on a USB storage device to send it to a METTLER TOLEDO representative.
	Import log configuration	A log configuration file can be provided by METTLER TOLEDO to allow a more comprehensive collection of balance parameters to be stored in the support file. This is only used for troubleshooting purposes. Tap to import the log configuration from a USB storage device so that the enhanced list of parameters can be exported and sent to a METTLER TOLEDO representative.
	Perform initial zero	Tap to perform an initial zero of the balance. This can be useful when using accessories whose weight exceeds the zeroing range of the balance, for example a density kit. This function is only available for approved balances.

6.2 Weighing methods settings

6.2.1 Settings: method "General weighing"

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

Edit method - my general weighing

General	Method type	General weighing
ID format	Method name	my general weighing
Weighing	Comment	Enter here
Weighing item	Lock method	☐
Automation		
Print / Export		

Close
Save

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

- General
- ID format
- Weighing
- Weighing item, only available for the method **General weighing**
- Weighing items, only available for the method **General weighing (itemized)**
- Automation
- Print / Export

See also

- Creating a method "General weighing" ► Page 49
- Editing a method ► Page 61

6.2.1.1 General

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

Parameter	Description	Values
Method name	Defines the name of the method.	Text (1...22 characters)
Comment	The method can be described with a comment.	Text (0...128 characters)
Lock method	Locks the method to prevent further editing.	Active Inactive*

* Factory setting

6.2.1.2 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the Number of task IDs is larger than 0, the settings Task ID , Task description and Prefix/Default value are available for every single task ID.	0 1* 2 3
Task ID 1	Defines the naming type of the task ID. Manual with default: The value of the task ID can be entered manually at method execution time. Automatic timestamp: The system provides a value created from a prefix with the current date and time appended.	Manual with default* Automatic timestamp

Task description	Allows to define a label for each task ID field.	Text (0...32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This setting is only available when the corresponding Task ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the task ID. This setting is only available is the corresponding Task ID is set to Automatic timestamp .	Text (0...32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the Number of result IDs is larger than 0, the settings Result ID , Result description and Prefix/Default value are available for every single result ID.	0 1* 2 3
Result ID 1	Defines the naming type of the result ID. Manual with default: The value of the result ID can be entered manually at method execution time. Automatic counter: The system provides a value created from a Prefix to which is appended a unique number (counter).	Manual with default* Automatic counter
Result description	Allows to define a label for each result ID.	Text (0...32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This setting is only available when the corresponding Result ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This setting is only available if the corresponding Result ID is set to Automatic counter .	Text (0...32 characters)

* Factory setting

6.2.1.3 Weighing

Parameter	Description	Values
Show info weight	When set to Active , a secondary weight is displayed on the weighing screen.	Active Inactive*
Info unit	Defines the unit of the Info weight . This setting is only available if Show info weight is set to Active .	The available units depend on the balance model.

* Factory setting

Custom unit

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

Parameter	Description	Values
Define custom unit	With this option activated, a specific weighing unit can be defined. This allows calculations, e.g., surfaces or volumes, to be carried out directly during the determination of the weighing result. If a custom unit is defined, this unit is added to the list of available units throughout the method.	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 two places after the decimal point with rounding to 5. A determined result of 123.4777 is consequently displayed as 123.50. This function can only be used to reduce the resolution of the weighing result. No value must therefore be entered that exceeds the maximum balance resolution. Values that are too small are automatically rounded off.	Numeric

* Factory setting

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Tolerance profiles are created by the user for specific balances and applications.
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 does not wait for a stable weight. The system waits for the defined Weight capture delay , then the weight value from the weight stream is captured. Dynamic : After the Weight capture delay , the balance calculates the weight as the average of a number of weighing values over a defined duration (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 setting is only available if Weight capture mode is set to Immediate or Dynamic .	Numeric (5 seconds* 0...60 seconds)
Weight capture duration	Defines the time during which the weight is captured and averaged. This setting is only available when the Weight capture mode is set to Dynamic .	Numeric (10 s* 3...120 s)

* Factory setting

Statistics

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

* Factory setting

Electrostatic

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

* Factory setting

See also

 [Creating a method "General weighing" ► Page 49](#)

6.2.1.4 Weighing item / Weighing items

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

Parameter	Description	Values
Sample ID	Defines the name of the sample. This setting is only available for methods containing several weighing items (itemized).	Text (0...32 characters)
Unit	Defines the unit of the weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-Tolerance	Defines the lower tolerance limit. This setting is only available if a Target weight is defined.	Numeric

+Tolerance	Defines the upper tolerance limit. This setting is only available if a Target weight is defined.	Numeric
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See also

-  Creating a method "General weighing" ► Page 49
-  Using methods with multiple weighing items (itemized) ► Page 62

6.2.1.5 Automation

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

* Factory setting

Automatic feeder support

When the parameter **Automatic feeder support** is activated, additional parameters can be defined to set up the automatic feeder LV12.

Parameter	Description	Values
Automatic feeder support	Enables or disables the automatic feeder support. To use the automatic feeder support, the automatic feeder has to be connected to the balance by USB and has to be configured correctly.	Active Inactive*
Number of weighing items	Defines the number of items that the automatic feeder will deliver to the balance.	Numeric (20* 1...100)
Plausibility limits	Defines the plausibility limit for measured values. The plausibility limit relates to the defined target weight. 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.	Numeric (30%* 0...100%)
Discharge feeder at the end	Specifies if the automatic feeder is emptied of all objects after the task. Active: The automatic feeder feeds at the configured discharge feed rate and stops 90 seconds after the last object has passed the light barrier. Inactive: No automatic emptying.	Active Inactive*

Feed rate	Defines the rate at which the automatic feeder delivers the items to the balance.	Slow Normal* Fast Very fast
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* Factory setting

Weighing automation

Parameter	Description	Values
Automatic zero	Active: the balance is automatically zeroed when the weight falls below a predefined threshold. This setting is not available for approved balances.	Active Inactive*
Automatic zero threshold	Defines the threshold of the Automatic zero . This setting is only available if Automatic zero is set to Active .	Numeric
Tare Mode	Defines the tare mode. None: No automatic tare. Automatic tare: The balance stores automatically the first stable weight as the tare weight. Preset tare: Allows you to enter manually a numerical entry of a fixed tare weight.	None* Automatic tare Preset tare
Automatic tare threshold	Defines the threshold of the option Tare Mode . This value defines the minimum weight that must be applied to the weighing pan so that it is automatically stored as the tare weight. If the weight is below the limits, it is not automatically transferred to the tare memory. Instead of entering the weight, the lightest tare container can be placed on the weighing pan and the button  subsequently pressed. The applied weight is directly taken over as a limit. This setting is only available if Tare Mode is set to Automatic tare .	Numeric
Preset tare value	Defines a weight value for the pretare function. Instead of entering the value, the respective tare container can be placed on the weighing pan and the button  subsequently pressed. The weight is directly taken over as pretare value. This setting is only available if Tare Mode is set to Preset tare .	Numeric
Automatic result	Automatically generates a weighing result after a threshold is reached. None: No automatic result will be generated. With sample tare: After a weight value that reached the threshold is being removed from the weighing pan, the balance is being tared. Without sample tare: After a weight value that reached the threshold is being removed from the weighing pan, the balance is not being tared. If Automatic feeder support is activated, the setting Automatic result is automatically set to Without sample tare and cannot be edited.	None With sample tare* Without sample tare
Automatic result threshold	Defines the threshold of the Automatic result . The result is automatically added to the Results list only if the weight of the sample is larger than the defined threshold. This setting is only available if Automatic result is set to Active .	Numeric

Weight trigger	Defines the behaviour of the option Automatic result threshold. Exceeding: The weighing result is generated when the weight exceeds the defined threshold. Falling below: The weighing result is generated when the weight falls below the defined threshold. This setting is only available if Automatic result is set to Without sample tare. If Automatic feeder support is activated, the setting Weight trigger is automatically set to Exceeding and cannot be edited.	Exceeding* Falling below
Automatic tare after result	If set to Active , the balance is automatically tared when a result is added to the Results list .	Active Inactive*
Automatic task completion	Active: the balance automatically completes a running task after the result of the last weighing item has been added to the Results list. This setting is only available if the method is using multiple weighing items.	Active Inactive*

* Factory setting

See also

 Creating a method "General weighing" ► Page 49

6.2.1.6 Print / Export

Parameter	Description	Values
Strip printout and data export	Defines the content of the printout and/or export, as well as which printing/exporting actions are performed automatically when the task is complete. This section contains several settings that are described in the table Strip printout and data export below.	
Label printout for task	Defines the template of the task label to be printed, i.e., which data is included on the label and in which format. This section contains several settings that are described in the table Label printout for task below.	
Label printout for weighing item	Defines the template of the weighing item label to be printed, i.e., which data is included on the label and in which format. This section contains several settings that are described in the table Label printout for weighing item below.	
Label cutting	Defines if the labels should be cut after printing. Per label: Each label is cut once printed. Per task: The labels are cut when the task is complete. This setting is only relevant if the connected label printer can cut labels.	Off* Per label Per task

* Factory setting

6.2.1.6.1 Strip printout and data export

Automatic data output

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

* Factory setting

Strip printout template

This menu item can be used to define which information is printed by the strip printer.

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

- 1 To disable all check boxes at once, tap  **Deselect all**.
➔ All parameters are set to **Inactive**.
- 2 To enable all check boxes at once, tap  **Select all**.
➔ All parameters are set to **Active**.

Template settings

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

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

6.2.1.6.2 Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to Active , the task label is automatically printed when tapping Complete .	Active Inactive*
Copies	Defines how many copies of the label are printed.	Numeric
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

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

Barcode settings

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

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

* Factory setting

6.2.1.6.3 Label printout for weighing item

Parameter	Description	Values
Automatic label printout for weighing item	When set to Active , the weighing item label is automatically printed when tapping Add result .	Active Inactive*
Copies	Defines how many copies of the label are printed.	Numeric
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

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

Barcode settings

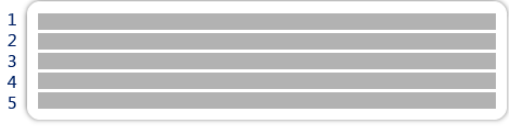
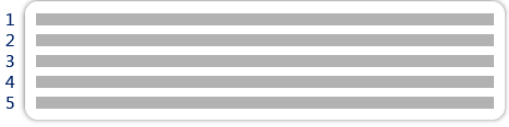
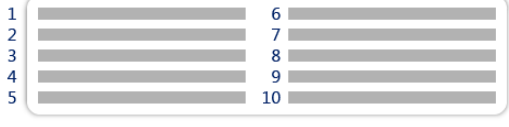
The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

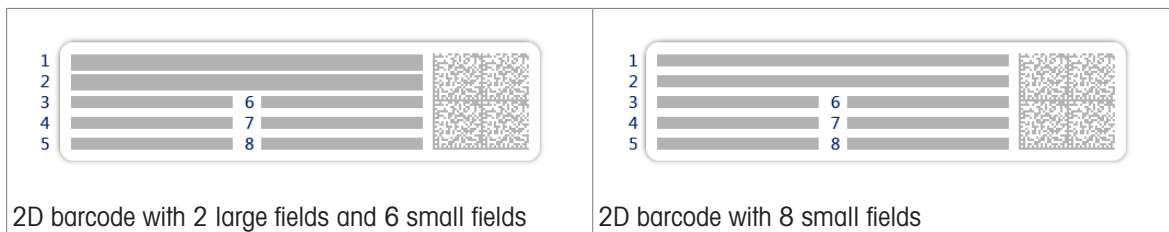
Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. This setting is only available when the selected Used template contains several 2D codes.	TAB* Form feed Carriage return Space User defined
Barcode field 1	Defines which information appears in each barcode. The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

* Factory setting

6.2.1.6.4 Available labels

The following label layouts can be selected:

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



6.2.2 Settings: method "Simple formulation"

Navigation: ▼ Methods > ≡ Methods list > 🏠 my simple formulation > ✎ Edit

Edit method - my simple formulation

General	Method type	Simple formulation
Formulation	Method name	my simple formulation
ID format	Comment	Enter here
Weighing		
Weighing item	Lock method	☐
Automation		
Print / Export		

Close Save

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

- ≡ General
- 🏠 Formulation
- ID format
- ⚙ Weighing
- ⚙ Weighing item, only available for the method **Simple formulation**
- ⚙ Weighing items, only available for the method **Simple formulation (itemized)**
- ⚙ Automation
- 🖨 Print / Export

See also

- 🔗 Creating a method "Simple formulation" ▶ Page 50
- 🔗 Editing a method ▶ Page 61

6.2.2.1 General

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

Parameter	Description	Values
Method name	Defines the name of the method.	Text (1...22 characters)
Comment	The method can be described with a comment.	Text (0...128 characters)
Lock method	Locks the method to prevent further editing.	Active Inactive*

* Factory setting

6.2.2.2 Formulation

Parameter	Description	Values
Calculate target	Defines the basis for the calculation of the target weight. 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 setting is only available for methods of the type Simple formulation (itemized).	None* Flask volume Target concentration
Calculate concentration per component	Calculates the concentration of the final solution. If Concentration unit represents a molar concentration (mol/l or mmol/l), the calculation is based on: • Purity • Reference flask volume • Molar mass • weight of the component If Concentration unit represents a mass concentration (mg/ml, mg/l, µg/ml, g/ml, or g/l), the calculation is based on: • Purity • Reference flask volume • weight of the component If Concentration unit represents a mass ratio (%), the calculation is based on: • Purity • Reference weight • weight of the component	Active Inactive*
Calculate amount of component	Calculates the amount of component (in mol) based on the Molar mass and weight of component.	Active Inactive*
Concentration unit	Defines the concentration unit. This setting is only available if Calculate concentration per component is set to Active.	mol/l* mmol/l mg/ml mg/l µg/ml g/ml g/l %
Reference flask volume	Defines the volume of the reference flask. This setting is only available if Concentration unit is not set to %.	Numeric (1 ml* 1...999999 ml)
Reference weight (100%)	Defines the reference weight for the calculation of concentration of the component. Instead of entering the reference weight manually, place the reference weight on the weighing pan and tap the button . The applied weight is directly taken over as a reference weight. This setting is only available if Concentration unit is set to %.	Depending on the capacity of the balance.

* Factory setting

Production and expiry date

Parameter	Description	Values
Production date	Defines the production date. Current date: The production date is set automatically to the date when starting the weighing task. Manual input: The production date can be entered manually when starting the weighing task.	None 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 setting is only available if Expiry date is set to Period .	Numeric (1 day* 1...9999 days)

* Factory setting

See also

 Creating a method "Simple formulation" ► Page 50

6.2.2.3 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the Number of task IDs is larger than 0, the settings Task ID , Task description and Prefix/Default value are available for every single task ID.	0 1* 2 3
Task ID 1	Defines the naming type of the task ID. Manual with default: The value of the task ID can be entered manually at method execution time. Automatic timestamp: The system provides a value created from a prefix with the current date and time appended.	Manual with default* Automatic timestamp
Task description	Allows to define a label for each task ID field.	Text (0...32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This setting is only available when the corresponding Task ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the task ID. This setting is only available is the corresponding Task ID is set to Automatic timestamp .	Text (0...32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the Number of result IDs is larger than 0, the settings Result ID , Result description and Prefix/Default value are available for every single result ID.	0 1* 2 3

Result ID 1	Defines the naming type of the result ID. Manual with default: The value of the result ID can be entered manually at method execution time. Automatic counter: The system provides a value created from a Prefix to which is appended a unique number (counter).	Manual with default* Automatic counter
Result description	Allows to define a label for each result ID.	Text (0...32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This setting is only available when the corresponding Result ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This setting is only available if the corresponding Result ID is set to Automatic counter .	Text (0...32 characters)

* Factory setting

6.2.2.4 Weighing

Parameter	Description	Values
Show info weight	When set to Active , a secondary weight is displayed on the weighing screen.	Active Inactive*
Info unit	Defines the unit of the Info weight . This setting is only available if Show info weight is set to Active .	The available units depend on the balance model.

* Factory setting

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Tolerance profiles are created by the user for specific balances and applications.

Electrostatic

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

* Factory setting

See also

 Creating a method "Simple formulation" ► Page 50

6.2.2.5 Weighing item

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

Initial values for weighing

Parameter	Description	Values
Molar mass	Defines the molar mass of the component. The molar mass of an ion is calculated by adding the atomic weight of the individual atoms the ion is composed of. This setting is available if Calculate amount of component is set to Active or if the Concentration unit is expressed in molar concentration.	Numeric (1...10000 g/mol)
Purity	To define the purity of the component. This setting is only available if Calculate concentration per component or Calculate amount of component is set to Active .	Numeric (100%* 0.001...100%)
Unit	Defines the unit of the weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-Tolerance	Defines the lower tolerance limit. This setting is only available if a Target weight is defined.	Numeric
+Tolerance	Defines the upper tolerance limit. This setting is only available if a Target weight is defined.	Numeric

* Factory setting

See also

 Creating a method "Simple formulation" ► Page 50

6.2.2.6 Weighing items

This section is only available for the method **Simple formulation (itemized)**.

Parameter	Description	Values
Component ID	Defines the name of the component.	Text (0...32 characters)
Molar mass	Defines the molar mass of the component. The molar mass of an ion is calculated by adding the atomic weight of the individual atoms the ion is composed of. This setting is available if Calculate amount of component is set to Active or if the Concentration unit is expressed in molar concentration.	Numeric (1...10000 g/mol)
Purity	To define the purity of the component. This setting is only available if Calculate concentration per component or Calculate amount of component is set to Active .	Numeric (100%* 0.001...100%)
Unit	Defines the unit of the weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight of the component. If Calculate target is set to Target concentration , the Target weight is calculated and cannot be edited manually.	Numeric
Target concentration	Defines the target concentration of the component. This setting is only available if Calculate target is set to Target concentration .	Numeric (0% 0.001...100%)

-Tolerance	Defines the lower tolerance limit. This setting is only available if a Target weight or Target concentration is defined.	Numeric
+Tolerance	Defines the upper tolerance limit. This setting is only available if a Target weight or Target concentration is defined.	Numeric

* Factory setting

See also

[Creating a method "Simple formulation" ▶ Page 50](#)

[Using methods with multiple weighing items \(itemized\) ▶ Page 62](#)

6.2.2.7 Automation

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

* Factory setting

Weighing automation

Parameter	Description	Values
Automatic zero	Active: the balance is automatically zeroed when the weight falls below a predefined threshold. This setting is not available for approved balances.	Active Inactive*
Automatic zero threshold	Defines the threshold of the Automatic zero. This setting is only available if Automatic zero is set to Active.	Numeric
Tare Mode	Defines the tare mode. None: No automatic tare. Automatic tare: The balance stores automatically the first stable weight as the tare weight. Preset tare: Allows you to enter manually a numerical entry of a fixed tare weight.	None* Automatic tare Preset tare

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

* Factory setting

See also

 Creating a method "Simple formulation" ► Page 50

6.2.2.8 Print / Export

Parameter	Description	Values
Strip printout and data export	Defines the content of the printout and/or export, as well as which printing/exporting actions are performed automatically when the task is complete. This section contains several settings that are described in the table Strip printout and data export below.	
Label printout for task	Defines the template of the task label to be printed, i.e., which data is included on the label and in which format. This section contains several settings that are described in the table Label printout for task below.	
Label printout for weighing item	Defines the template of the weighing item label to be printed, i.e., which data is included on the label and in which format. This section contains several settings that are described in the table Label printout for weighing item below.	
Label cutting	Defines if the labels should be cut after printing. Per label: Each label is cut once printed. Per task: The labels are cut when the task is complete. This setting is only relevant if the connected label printer can cut labels.	Off* Per label Per task

* Factory setting

6.2.2.8.1 Strip printout and data export

Automatic data output

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

* Factory setting

Strip printout template

This menu item can be used to define which information is printed by the strip printer.

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

- 1 To disable all check boxes at once, tap  **Deselect all**.
➔ All parameters are set to **Inactive**.
- 2 To enable all check boxes at once, tap  **Select all**.
➔ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header and/or footer to be printed.	Title Title text Date/time User Signature Separating lines Group titles
Balance information	Defines which information about the balance is printed.	Balance type Balance ID Balance serial number Software version
Quality information	Defines which quality information is printed.	Tolerance profile Adjustment date/time Routine test name Routine test last execution date Routine test result GWP Approved state Level state MinWeigh state
Task information	Defines which information about the task is printed.	Method name Method comment Task ID Flask volume Reference weight Expiry date Production date

Weighing item information	Defines which information about the weighing items is printed.	Show excluded weighing items Result state Result IDs Molar mass Purity Amount of substance Concentration GWP Approved state Level state MinWeigh state Tolerance state Target and tolerances
Result detail information	Defines which information related to the result of the measurement is printed.	Weight Tare weight Gross weight Info weight Date/time Stability

6.2.2.8.2 Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to Active , the task label is automatically printed when tapping Complete .	Active Inactive*
Copies	Defines how many copies of the label are printed.	Numeric
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

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

Barcode settings

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

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

* Factory setting

6.2.2.8.3 Label printout for weighing item

Parameter	Description	Values
Automatic label printout for weighing item	When set to Active , the weighing item label is automatically printed when tapping Add result .	Active Inactive*
Copies	Defines how many copies of the label are printed.	Numeric
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

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

Barcode settings

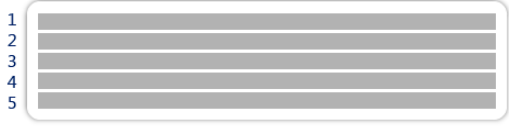
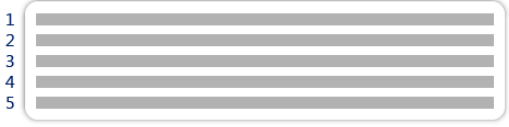
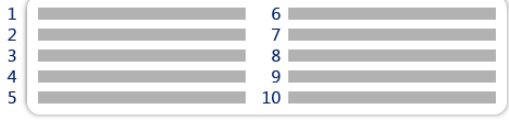
The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

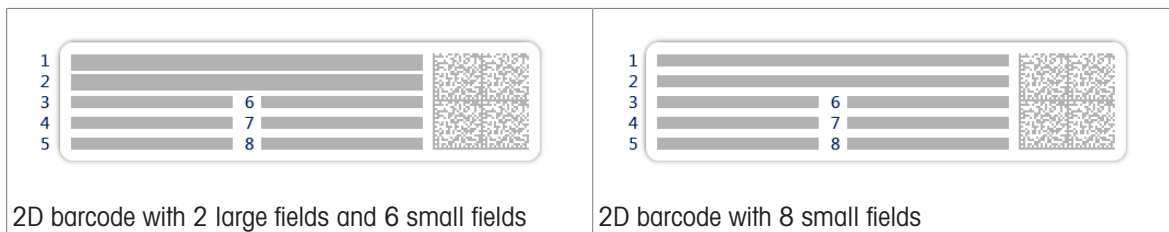
Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. This setting is only available when the selected Used template contains several 2D codes.	TAB* Form feed Carriage return Space User defined
Barcode field 1	Defines which information appears in each barcode. The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

* Factory setting

6.2.2.8.4 Available labels

The following label layouts can be selected:

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



6.2.3 Settings: method "Interval weighing"

Navigation: ▼ Methods > ≡ Methods list > ⌚ my interval weighing > ✎ Edit

Edit method - my interval weighing

General	Method type	Interval weighing
Interval	Method name	my interval weighing
ID format	Comment	Enter here
Weighing		
Weighing item	Lock method	☐
Automation		
Print / Export		

Close Save

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

- ≡ General
- ⌚ Interval
- ID ID format
- ⚙ Weighing
- ⚙ Weighing item
- ⌚ Automation
- 🖨 Print / Export

See also

- 🔗 Creating a method "Interval weighing" ▶ Page 52
- 🔗 Editing a method ▶ Page 61

6.2.3.1 General

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

Parameter	Description	Values
Method name	Defines the name of the method.	Text (1...22 characters)
Comment	The method can be described with a comment.	Text (0...128 characters)
Lock method	Locks the method to prevent further editing.	Active Inactive*

* Factory setting

6.2.3.2 Interval

Parameter	Description	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 of the method based on the values defined for the parameters **Approximate interval** and **Measurements**.

See also

 Creating a method "Interval weighing" ► Page 52

6.2.3.3 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the Number of task IDs is larger than 0, the settings Task ID , Task description and Prefix/Default value are available for every single task ID.	0 1* 2 3
Task ID 1	Defines the naming type of the task ID. Manual with default: The value of the task ID can be entered manually at method execution time. Automatic timestamp: The system provides a value created from a prefix with the current date and time appended.	Manual with default* Automatic timestamp
Task description	Allows to define a label for each task ID field.	Text (0...32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This setting is only available when the corresponding Task ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the task ID. This setting is only available if the corresponding Task ID is set to Automatic timestamp .	Text (0...32 characters)

* Factory setting

6.2.3.4 Weighing

Parameter	Description	Values
Show info weight	When set to Active , a secondary weight is displayed on the weighing screen.	Active Inactive*
Info unit	Defines the unit of the Info weight . This setting is only available if Show info weight is set to Active .	The available units depend on the balance model.

* Factory setting

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Tolerance profiles are created by the user for specific balances and applications.

See also

 Creating a method "Interval weighing" ► Page 52

6.2.3.5 Weighing item

Initial values for weighing

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

See also

 Creating a method "Interval weighing" ► Page 52

6.2.3.6 Automation

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

* Factory setting

See also

 Creating a method "Interval weighing" ► Page 52

6.2.3.7 Print / Export

Parameter	Description	Values
Strip printout and data export	Defines the content of the printout and/or export, as well as which printing/exporting actions are performed automatically when the task is complete. This section contains several settings that are described in the table Strip printout and data export below.	

6.2.3.7.1 Strip printout and data export

Automatic data output

Parameter	Description	Values
Results export	Activates/Deactivates the automatic data export to a file server or USB storage device when the Complete button is tapped.	Active Inactive*

* Factory setting

6.2.4 Settings: method "Titration"

Navigation: ▼ Methods > Methods list > my titration > Edit

Edit method - my titration

General	Method type	Titration
Titration	Method name	my titration
ID format	Comment	<i>Enter here</i>
Weighing	Lock method	☐
Weighing item		
Automation		
Print / Export		

Close
 Save

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

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

See also

Creating a method "Titration" ▶ Page 53

Editing a method ▶ Page 61

6.2.4.1 General

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

Parameter	Description	Values
Method name	Defines the name of the method.	Text (1...22 characters)
Comment	The method can be described with a comment.	Text (0...128 characters)
Lock method	Locks the method to prevent further editing.	Active Inactive*

* Factory setting

6.2.4.2 Titration

Parameter	Description	Values
RFID option	Defines the behavior of the RFID reader. Write only: The RFID reader can only write content on the RFID tag. Read and write: The RFID reader can read the content of the RFID tag and write data on the RFID tag.	Inactive* Write only Read and write
Density	Defines the density of the liquid. This setting is only available if RFID option is set to Write only or Read and write .	Numeric (1.0000 g/ml* 0...100 g/ml)

Correction factor	Defines the titration correction factor. This setting is only available if RFID option is set to Write only or Read and write .	Numeric (1.0000* 0...1000000)
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* Factory setting

See also

 Creating a method "Titration" ► Page 53

6.2.4.3 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the Number of task IDs is larger than 0, the settings Task ID , Task description and Prefix/Default value are available for every single task ID.	0 1* 2 3
Task ID 1	Defines the naming type of the task ID. Manual with default: The value of the task ID can be entered manually at method execution time. Automatic timestamp: The system provides a value created from a prefix with the current date and time appended.	Manual with default* Automatic timestamp
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 setting is only available when the corresponding Task ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the task ID. This setting is only available is the corresponding Task ID is set to Automatic timestamp .	Text (0...32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the Number of result IDs is larger than 0, the settings Result ID , Result description and Prefix/Default value are available for every single result ID.	0 1* 2 3
Result ID 1	Defines the naming type of the result ID. Manual with default: The value of the result ID can be entered manually at method execution time. Automatic counter: The system provides a value created from a Prefix to which is appended a unique number (counter).	Manual with default* Automatic counter
Result description	Allows to define a label for each result ID.	Text (0...32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This setting is only available when the corresponding Result ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This setting is only available if the corresponding Result ID is set to Automatic counter .	Text (0...32 characters)

* Factory setting

Note

The maximum text length of the **Sample ID** is 32 characters. If the RFID option activated, only the first 20 characters are transferred to the RFID tag.

6.2.4.4 Weighing

Parameter	Description	Values
Show info weight	When set to Active , a secondary weight is displayed on the weighing screen.	Active Inactive*
Info unit	Defines the unit of the Info weight . This setting is only available if Show info weight is set to Active .	The available units depend on the balance model.

* Factory setting

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Tolerance profiles are created by the user for specific balances and applications.
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 setting is only available if Weight capture mode is set to Immediate .	Numeric (5 seconds* 0...60 seconds)

* Factory setting

Electrostatic

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

* Factory setting

See also

[Creating a method "Titration"](#) ► Page 53

6.2.4.5 Weighing item

Initial values for weighing

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

Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-Tolerance	Defines the lower tolerance limit. This setting is only available if a Target weight is defined.	Numeric
+Tolerance	Defines the upper tolerance limit. This setting is only available if a Target weight is defined.	Numeric

6.2.4.6 Automation

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

* Factory setting

Weighing automation

Parameter	Description	Values
Automatic zero	Active: the balance is automatically zeroed when the weight falls below a predefined threshold. This setting is not available for approved balances.	Active Inactive*
Automatic zero threshold	Defines the threshold of the Automatic zero. This setting is only available if Automatic zero is set to Active.	Numeric
Tare Mode	Defines the tare mode. None: No automatic tare. Automatic tare: The balance stores automatically the first stable weight as the tare weight. Preset tare: Allows you to enter manually a numerical entry of a fixed tare weight.	None* Automatic tare Preset tare

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

* Factory setting

See also

 Creating a method "Titration" ► Page 53

6.2.4.7 Print / Export

Parameter	Description	Values
Strip printout and data export	Defines the content of the printout and/or export, as well as which printing/exporting actions are performed automatically when the task is complete. This section contains several settings that are described in the table Strip printout and data export below.	
Label printout for task	Defines the template of the task label to be printed, i.e., which data is included on the label and in which format. This section contains several settings that are described in the table Label printout for task below.	

Label printout for weighing item	Defines the template of the weighing item label to be printed, i.e., which data is included on the label and in which format. This section contains several settings that are described in the table Label printout for weighing item below.	
Label cutting	Defines if the labels should be cut after printing. Per label: Each label is cut once printed. Per task: The labels are cut when the task is complete. This setting is only relevant if the connected label printer can cut labels.	Off* Per label Per task

* Factory setting

6.2.4.7.1 Strip printout and data export

Automatic data output

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

* Factory setting

Strip printout template

This menu item can be used to define which information is printed by the strip printer.

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

- To disable all check boxes at once, tap ☐ **Deselect all**.
➔ All parameters are set to **Inactive**.
- To enable all check boxes at once, tap ☒ **Select all**.
➔ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header and/or footer to be printed.	Title Title text Date/time User Signature Separating lines Group titles
Balance information	Defines which information about the balance is printed.	Balance type Balance ID Balance serial number Software version
Quality information	Defines which quality information is printed.	Tolerance profile Adjustment date/time Routine test name Routine test last execution date Routine test result GWP Approved state Level state MinWeigh state

Task information	Defines which information about the task is printed.	Method name Method comment Task IDs Automatic result settings
Weighing item information	Defines which information about the weighing items is printed.	Show excluded weighing items Result state Result IDs Density Correction factor GWP Approved state Level state MinWeigh state Tolerance state Target and tolerances
Result detail information	Defines which information related to the result of the measurement is printed.	Weight Tare weight Gross weight Info weight Date/time Stability

6.2.4.7.2 Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to Active , the task label is automatically printed when tapping Complete .	Active Inactive*
Copies	Defines how many copies of the label are printed.	Numeric
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

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

Barcode settings

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

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

* Factory setting

6.2.4.7.3 Label printout for weighing item

Parameter	Description	Values
Automatic label printout for weighing item	When set to Active , the weighing item label is automatically printed when tapping Add result .	Active Inactive*
Copies	Defines how many copies of the label are printed.	Numeric

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

* Factory setting

Field settings

The content of each label field can be defined individually.

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

Barcode settings

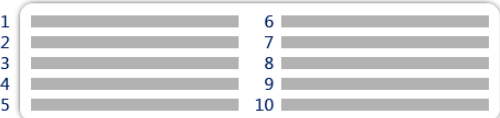
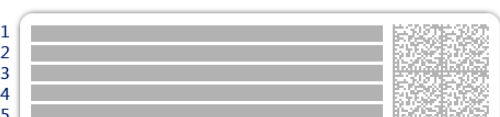
The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

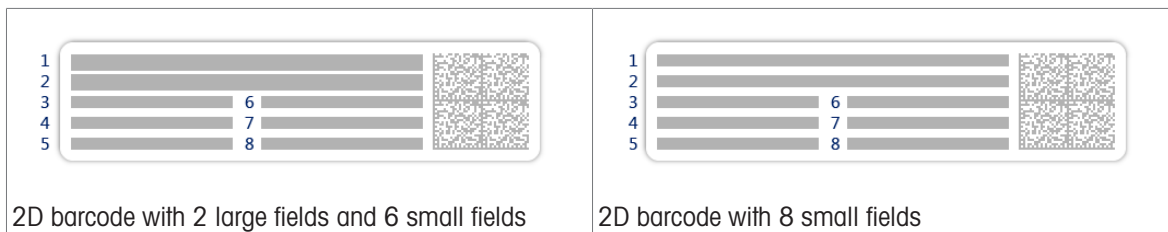
Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. This setting is only available when the selected Used template contains several 2D codes.	TAB* Form feed Carriage return Space User defined
Barcode field 1	Defines which information appears in each barcode. The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

* Factory setting

6.2.4.7.4 Available labels

The following label layouts can be selected:

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



6.2.5 Settings: method "Density determination"

Navigation: ▼ Methods > Methods list > my density > Edit

Edit method - my density

General	Method type	Density determination
Density	Method name	my density
ID format	Comment	<i>Enter here</i>
Weighing		
Weighing item	Lock method	☐
Automation		
Print / Export		

Close
 Save

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

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

See also

- Creating a method "Density determination" ► Page 55
- Editing a method ► Page 61

6.2.5.1 General

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

Parameter	Description	Values
Method name	Defines the name of the method.	Text (1...22 characters)
Comment	The method can be described with a comment.	Text (0...128 characters)
Lock method	Locks the method to prevent further editing.	Active Inactive*

* Factory setting

6.2.5.2 Density

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

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

* Factory setting

See also

 Creating a method "Density determination" ► Page 55

6.2.5.3 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the Number of task IDs is larger than 0, the settings Task ID , Task description and Prefix/Default value are available for every single task ID.	0 1* 2 3
Task ID 1	Defines the naming type of the task ID. Manual with default : The value of the task ID can be entered manually at method execution time. Automatic timestamp : The system provides a value created from a prefix with the current date and time appended.	Manual with default* Automatic timestamp
Task description	Allows to define a label for each task ID field.	Text (0...32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This setting is only available when the corresponding Task ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the task ID. This setting is only available is the corresponding Task ID is set to Automatic timestamp .	Text (0...32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the Number of result IDs is larger than 0, the settings Result ID , Result description and Prefix/Default value are available for every single result ID.	0 1* 2 3
Result ID 1	Defines the naming type of the result ID. Manual with default: The value of the result ID can be entered manually at method execution time. Automatic counter: The system provides a value created from a Prefix to which is appended a unique number (counter).	Manual with default* Automatic counter
Result description	Allows to define a label for each result ID.	Text (0...32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This setting is only available when the corresponding Result ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This setting is only available if the corresponding Result ID is set to Automatic counter .	Text (0...32 characters)

* Factory setting

6.2.5.4 Weighing

Parameter	Description	Values
Show info weight	When set to Active , a secondary weight is displayed on the weighing screen.	Active Inactive*
Info unit	Defines the unit of the Info weight . This setting is only available if Show info weight is set to Active .	The available units depend on the balance model.

* Factory setting

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Tolerance profiles are created by the user for specific balances and applications.
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 setting is only available if Weight capture mode is set to Immediate .	Numeric (5 seconds* 0...60 seconds)

* Factory setting

Statistics

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

* Factory setting

See also

 Creating a method "Density determination" ► Page 55

6.2.5.5 Weighing item

The **Weighing item** settings are different for the three types of **Density determination**. The settings for **Initial values for weighing** are presented separately for each **Determination type**.

Initial values for weighing – Determination type: Solid

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

* Factory setting

Initial values for weighing – Determination type: Liquid (sinker)

Parameter	Description	Values
Unit	Defines the unit of the weighing result.	The available units depend on the balance model.
Temperature	Defines the temperature of the liquid.	Numeric (10°C...30.9°C)
Sinker volume	Defines the volume of the sinker in cm ³ .	Numeric (0.0001...500 cm ³)

Initial values for weighing – Determination type: Liquid (pycnometer)

Parameter	Description	Values
Unit	Defines the unit of the weighing result.	The available units depend on the balance model.
Temperature	Defines the temperature of the liquid.	Numeric (10°C...30.9°C)
Pycnometer volume	Defines volume of the pycnometer in cm ³ .	Numeric (0.001...10000 cm ³)
Pycnometer weight	Defines the weight of the pycnometer.	Numeric

See also

 Creating a method "Density determination" ► Page 55

6.2.5.6 Automation

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

* Factory setting

See also

 Creating a method "Density determination" ► Page 55

6.2.5.7 Print / Export

Parameter	Description	Values
Strip printout and data export	Defines the content of the printout and/or export, as well as which printing/exporting actions are performed automatically when the task is complete. This section contains several settings that are described in the table Strip printout and data export below.	

6.2.5.7.1 Strip printout and data export

Automatic data output

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

* Factory setting

Strip printout template

This menu item can be used to define which information is printed by the strip printer.

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

- 1 To disable all check boxes at once, tap  **Deselect all**.
➔ All parameters are set to **Inactive**.
- 2 To enable all check boxes at once, tap  **Select all**.
➔ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header and/or footer to be printed.	Title Title text Date/time User Signature Separating lines Group titles
Balance information	Defines which information about the balance is printed.	Balance type Balance ID Balance serial number Software version
Quality information	Defines which quality information is printed.	Tolerance profile Adjustment date/time Routine test name Routine test last execution date Routine test result GWP Approved state Level state MinWeigh state

Task information	Defines which information about the task is printed.	Method name Method comment Task IDs Count Average Minimum Maximum Standard deviation Relative standard deviation Type of density determination Decimal places for density weighing results Air density compensation
Weighing item information	Defines which information about the weighing items is printed.	Show excluded weighing items Result state Result IDs GWP Approved state Level state MinWeigh state Temperature Auxiliary liquid name and density Volume of sample Weight of sample in air Weight of sample in liquid
Result detail information	Defines which information related to the result of the measurement is printed.	Weight Tare weight Gross weight Info weight Date/time Stability

6.2.6 Settings: method "SQC"

Navigation: ▼ Methods > ≡ Methods list > \N my SQC > ✎ Edit

Edit method - my SQC

General

ID format

Weighing

Weighing item

Automation

Print / Export

Method type

SQC

Method name

my SQC

Comment

Enter here

Lock method

☐

Close

Save

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

- ≡ General
- ID format
- ⚙ Weighing
- ⚙ Weighing item
- ⚙ Automation
- 🖨 Print / Export

See also

- 🔗 Creating a method "SQC" ▶ Page 56
- 🔗 Editing a method ▶ Page 61

6.2.6.1 General

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

Parameter	Description	Values
Method name	Defines the name of the method.	Text (1...22 characters)
Comment	The method can be described with a comment.	Text (0...128 characters)
Lock method	Locks the method to prevent further editing.	Active Inactive*

* Factory setting

6.2.6.2 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the Number of task IDs is larger than 0, the settings Task ID , Task description and Prefix/Default value are available for every single task ID.	0 1* 2 3
Task ID 1	Defines the naming type of the task ID. Manual with default: The value of the task ID can be entered manually at method execution time. Automatic timestamp: The system provides a value created from a prefix with the current date and time appended.	Manual with default* Automatic timestamp

Task description	Allows to define a label for each task ID field.	Text (0...32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This setting is only available when the corresponding Task ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the task ID. This setting is only available is the corresponding Task ID is set to Automatic timestamp .	Text (0...32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the Number of result IDs is larger than 0, the settings Result ID , Result description and Prefix/Default value are available for every single result ID.	0* 1 2 3
Result ID 1	Defines the naming type of the result ID. Manual with default: The value of the result ID can be entered manually at method execution time. Automatic counter: The system provides a value created from a Prefix to which is appended a unique number (counter).	Manual with default* Automatic counter
Result description	Allows to define a label for each result ID.	Text (0...32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This setting is only available when the corresponding Result ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This setting is only available if the corresponding Result ID is set to Automatic counter .	Text (0...32 characters)

* Factory setting

6.2.6.3 Weighing

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Tolerance profiles are created by the user for specific balances and applications.

Statistics

Parameter	Description	Values
Custom time span statistics 1	Allows the user to define a custom time span for the calculation of statistics. If activated, the weighing information of each new item is added to the batch statistics until the statistics are Reset manually by the user. If Custom time span statistics 1 is set to Active, the following statistics will be calculated: Count: number of items used for the statistics Sum: sum of all value (decimal places and unit according to the method settings) Minimum: smallest value (decimal places and unit according to the method settings) Maximum: largest value (decimal places and unit according to the method setting) Range: difference between the largest and smallest values (decimal places and unit according to the method settings) Average: The values are summed up and divided by the number of values, rounded to 1 digit more than the configured decimal places in the associated tolerance profile (unit according to the method settings). Standard deviation: standard deviation rounded to 1 digit more than the configured decimal places in the associated tolerance profile (unit according to the method settings) Relative standard deviation: relative standard deviation (rounded to 2 decimal places, in %) The statistical values are calculated and displayed as soon as a result is added or updated.	Active Inactive*
Statistics 1 - Name	Defines the name of the custom time span statistics. This setting is only available if Custom time span statistics 1 is set to Active.	Text (1...22 characters)
Custom time span statistics 2	Allows the user to define a second custom time span for the calculation of the statistics. Refer to the description of Custom time span statistics 1 for more details.	Active Inactive*
Statistics 2 - Name	Defines the name of the custom time span statistics. This setting is only available if Custom time span statistics 2 is set to Active.	Text (1...22 characters)

* Factory setting

Electrostatic

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

* Factory setting

See also

 Creating a method "SQC" ► Page 56

6.2.6.4 Weighing item

Parameter	Description	Values
Liquid	If the weighing item is a liquid, the Nominal value is specified as a volume instead of a weight. If Liquid is set to Active , the Liquid density must be provided.	Active Inactive*
Unit	Defines the unit of the Nominal weight or volume.	The available units depend on other method settings.
Liquid density	Defines the density of the liquid. This density is used to convert the weighing result to a volume. This setting is only available if Liquid is set to Active .	Numeric
Calculate net weight excl. packaging	Defines if the net weight excluding the packaging should be calculated for each item. If set to Active , a defined Packaging is subtracted from each weighing.	Active Inactive*
Packaging	Defines the reference weight of the packaging. Instead of entering the reference weight manually, place the empty packaging on the weighing pan and tap the button  . The applied weight is directly taken over as a reference weight. This setting is only available if Calculate net weight excl. packaging is set to Active .	Depending on the capacity of the balance.
Use measured average as nominal	Allows the nominal value to be calculated from the average of all items.	Active Inactive*
Plausibility reference	Defines a reference nominal value for plausibility check, only if the nominal value is calculated from the average of all items. This setting is only available if Use measured average as nominal is set to Active .	Numeric
Nominal weight	Defines the value for the nominal weight. The nominal weight is defined as the expected weight of the measured object.	Numeric
Plausibility limits	Defines the plausibility limit for measured values. The plausibility limit relates to the defined target weight. 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.	Numeric (30%* 0...100%)
-Tolerance T1	Defines the lower tolerance limit.	Numeric
+Tolerance T1	Defines the upper tolerance limit.	Numeric
T2 tolerances	Defines if a second set of tolerances is used. The T2 tolerances must be bigger than the T1 tolerances. If set to Active , the statistics will report the number of counts as follows: • Count above +T2 • Count between +T1 and +T2 • Count between -T1 and +T1 • Count between -T2 and -T1 • Count below -T2	Active Inactive*
-Tolerance T2	Defines the lower tolerance limit. This setting is only available if T2 tolerances is set to Active	Numeric

+Tolerance T2	Defines the upper tolerance limit. This setting is only available if T2 tolerances is set to Active	Numeric
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* Factory setting

See also

 Creating a method "SQC" ► Page 56

6.2.6.5 Automation

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

* Factory setting

Automatic feeder support

When the parameter **Automatic feeder support** is activated, additional parameters can be defined to set up the automatic feeder LV12.

Parameter	Description	Values
Automatic feeder support	Enables or disables the automatic feeder support. To use the automatic feeder support, the automatic feeder has to be connected to the balance by USB and has to be configured correctly.	Active Inactive*
Discharge feeder at the end	Specifies if the automatic feeder is emptied of all objects after the task. Active: The automatic feeder feeds at the configured discharge feed rate and stops 90 seconds after the last object has passed the light barrier. Inactive: No automatic emptying.	Active Inactive*
Feed rate	Defines the rate at which the automatic feeder delivers the items to the balance.	Slow Normal* Fast Very fast

* Factory setting

Weighing automation

Parameter	Description	Values
Automatic zero	Active: the balance is automatically zeroed when the weight falls below a predefined threshold. This setting is not available for approved balances.	Active Inactive*
Automatic zero threshold	Defines the threshold of the Automatic zero . This setting is only available if Automatic zero is set to Active .	Numeric

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

* Factory setting

See also

 Creating a method "SQC" ► Page 56

6.2.6.6 Print / Export

Parameter	Description	Values
Strip printout and data export	Defines the content of the printout and/or export, as well as which printing/exporting actions are performed automatically when the task is complete. This section contains several settings that are described in the table Strip printout and data export below.	

6.2.6.6.1 Strip printout and data export

Automatic data output

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

* Factory setting

Strip printout template

This menu item can be used to define which information is printed by the strip printer.

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

- 1 To disable all check boxes at once, tap  **Deselect all**.
⇒ All parameters are set to **Inactive**.
- 2 To enable all check boxes at once, tap  **Select all**.
⇒ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header and/or footer to be printed.	Title Title text Date/time User Signature Separating lines Group titles
Balance information	Defines which information about the balance is printed.	Balance type Balance ID Balance serial number Software version
Quality information	Defines which quality information is printed.	Tolerance profile Adjustment date/time Routine test name Routine test last execution date Routine test result GWP Approved state Level state MinWeigh state

Task information	Defines which information about the task is printed.	Method name Method comment Task IDs Start and end date/time Automatic result settings In tolerance chart Count Average Minimum Maximum Range Standard deviation Relative standard deviation Count above +T2 Count between +T1 and +T2 Count between -T1 and +T1 Count between -T2 and -T1 Count below -T2
Weighing item information	Defines which information about the weighing items is printed/exported.	Show excluded weighing items Result state Result IDs Liquid density Calculate net weight excl. packaging Packaging Use measured average as nominal GWP Approved state Electrostatic charge Level state MinWeigh state Tolerance state Nominal and tolerances Plausibility reference and tolerances Plausibility limits
Result detail information	Defines which information related to the result of the measurement is printed.	Weight Tare weight Gross weight Info weight Date/time Stability

6.2.7 Settings: method "Piece Counting"

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

Edit method - my piece counting

General	Method type Piece Counting
ID format	Method name my piece counting
Weighing	Comment <i>Enter here</i>
Weighing item	
Automation	Lock method ☐
Print / Export	

Close
 Save

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

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

See also

-  Creating a method "Piece Counting" ► Page 60
-  Editing a method ► Page 61

6.2.7.1 General

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

Parameter	Description	Values
Method name	Defines the name of the method.	Text (1...22 characters)
Comment	The method can be described with a comment.	Text (0...128 characters)
Lock method	Locks the method to prevent further editing.	Active Inactive*

* Factory setting

6.2.7.2 ID format

Task IDs

Parameter	Description	Values
Number of task IDs	Defines the number of task IDs. If the Number of task IDs is larger than 0, the settings Task ID , Task description and Prefix/Default value are available for every single task ID.	0 1* 2 3
Task ID 1	Defines the naming type of the task ID. Manual with default: The value of the task ID can be entered manually at method execution time. Automatic timestamp: The system provides a value created from a prefix with the current date and time appended.	Manual with default* Automatic timestamp
Task description	Allows to define a label for each task ID field.	Text (0...32 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method. This setting is only available when the corresponding Task ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the task ID. This setting is only available is the corresponding Task ID is set to Automatic timestamp .	Text (0...32 characters)

* Factory setting

Result IDs

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs. If the Number of result IDs is larger than 0, the settings Result ID , Result description and Prefix/Default value are available for every single result ID.	0 1* 2 3
Result ID 1	Defines the naming type of the result ID. Manual with default: The value of the result ID can be entered manually at method execution time. Automatic counter: The system provides a value created from a Prefix to which is appended a unique number (counter).	Manual with default* Automatic counter
Result description	Allows to define a label for each result ID.	Text (0...32 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method. This setting is only available when the corresponding Result ID is set to Manual with default .	Text (0...32 characters)
Prefix	Defines a prefix for the result ID. This setting is only available if the corresponding Result ID is set to Automatic counter .	Text (0...32 characters)

* Factory setting

6.2.7.3 Weighing

Parameter	Description	Values
Show info weight	When set to Active , a secondary weight is displayed on the weighing screen.	Active Inactive*
Info unit	Defines the unit of the Info weight . This setting is only available if Show info weight is set to Active .	The available units depend on the balance model.

* Factory setting

Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Tolerance profiles are created by the user for specific balances and applications.
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 setting is only available if Weight capture mode is set to Immediate .	Numeric (5 seconds* 0...60 seconds)

* Factory setting

Statistics

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

* Factory setting

See also

 Creating a method "Piece Counting" ► Page 60

6.2.7.4 Weighing item

Initial values for weighing

Parameter	Description	Values
Reference PCS	Defines the number of items used to determine the average weight per item.	Numeric (1* 1... 10000)
Reference average weight	Defines the average weight for one piece. The average weight of one piece serves as basis for the piece counting. During task execution, the balance calculates the actual number of pieces on the weighing pan based on the measured weight and the average weight of one piece.	Numeric
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-Tolerance	Defines the lower tolerance limit. This setting is only available if a Target weight is defined.	Numeric
+Tolerance	Defines the upper tolerance limit. This setting is only available if a Target weight is defined.	Numeric

* Factory setting

See also

 Creating a method "Piece Counting" ► Page 60

6.2.7.5 Automation

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

* Factory setting

Weighing automation

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

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

* Factory setting

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

See also

 Creating a method "Piece Counting" ► Page 60

6.2.7.6 Print / Export

Parameter	Description	Values
Strip printout and data export	Defines the content of the printout and/or export, as well as which printing/exporting actions are performed automatically when the task is complete. This section contains several settings that are described in the table Strip printout and data export below.	
Label printout for task	Defines the template of the task label to be printed, i.e., which data is included on the label and in which format. This section contains several settings that are described in the table Label printout for task below.	
Label printout for weighing item	Defines the template of the weighing item label to be printed, i.e., which data is included on the label and in which format. This section contains several settings that are described in the table Label printout for weighing item below.	
Label cutting	Defines if the labels should be cut after printing. Per label: Each label is cut once printed. Per task: The labels are cut when the task is complete. This setting is only relevant if the connected label printer can cut labels.	Off* Per label Per task

* Factory setting

6.2.7.6.1 Strip printout and data export

Automatic data output

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

* Factory setting

Strip printout template

This menu item can be used to define which information is printed by the strip printer.

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

- 1 To disable all check boxes at once, tap  **Deselect all**.
➔ All parameters are set to **Inactive**.
- 2 To enable all check boxes at once, tap  **Select all**.
➔ All parameters are set to **Active**.

Template settings

Parameter	Description	Values
Header and Footer	Defines the header and/or footer to be printed.	Title Title text Date/time User Signature Separating lines Group titles
Balance information	Defines which information about the balance is printed.	Balance type Balance ID Balance serial number Software version
Quality information	Defines which quality information is printed.	Tolerance profile Adjustment date/time Routine test name Routine test last execution date Routine test result GWP Approved state Level state MinWeigh state
Task information	Defines which information about the task is printed.	Method name Method comment Task IDs Automatic result settings Count Sum Average Minimum Maximum Standard deviation Relative standard deviation PCS below -Tolerance PCS above +Tolerance

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

6.2.7.6.2 Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to Active , the task label is automatically printed when tapping Complete .	Active Inactive*
Copies	Defines how many copies of the label are printed.	Numeric
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

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

Barcode settings

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

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

* Factory setting

6.2.7.6.3 Label printout for weighing item

Parameter	Description	Values
Automatic label printout for weighing item	When set to Active , the weighing item label is automatically printed when tapping Add result .	Active Inactive*
Copies	Defines how many copies of the label are printed.	Numeric
Used template	Chooses the label template.	Available labels are shown below.

* Factory setting

Field settings

The content of each label field can be defined individually.

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

Barcode settings

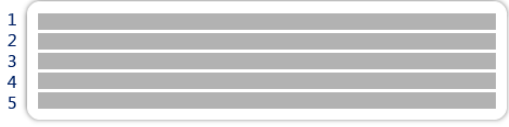
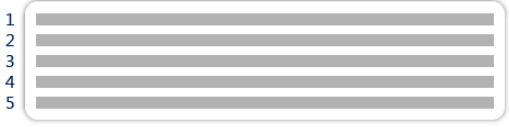
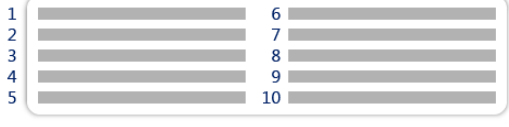
The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

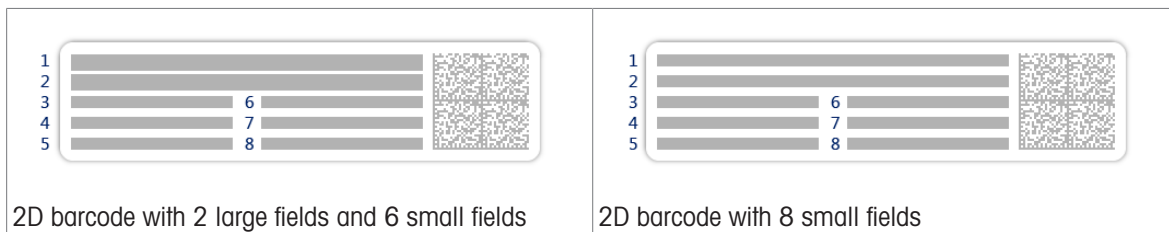
Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries. This setting is only available when the selected Used template contains several 2D codes.	TAB* Form feed Carriage return Space User defined
Barcode field 1	Defines which information appears in each barcode. The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

* Factory setting

6.2.7.6.4 Available labels

The following label layouts can be selected:

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



6.3 Test weights settings

6.3.1 Settings: individual test weight

Navigation: ▼ Methods > 🛠 Tests > ⚙ Test weights > ⚙ my weight 1 > ✎ Edit

Parameter	Description	Values
Test weight name	Defines the name of the test weight.	Text (1...22 characters)
Test weight ID	Defines the test weight ID.	Text (1...22 characters)
Nominal weight	Defines the approximate, rounded value of the Actual weight .	Numeric
Weight class	Defines the weight class according to OIML or ASTM. Alternatively, a customized tolerance class can be created with Own .	E1 E2 F1 F2 M1 M2 M3 ASTM000 ASTM00 ASTM0 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 next date for calibration.	Date
Certificate	If the certificate of the test weight is available, set to Active and fill in the additional information related to the certificate (see below).	Active Inactive*
Certificate ID	Defines the certificate ID. This setting is only available if Certificate ID is set to Active .	Text (1...22 characters)
Certificate date	Defines the certificate date. This setting is only available if Certificate ID is set to Active .	Date
Weight set ID	Defines the weight set ID.	Text (1...22 characters)

* Factory setting

6.3.2 Settings: combined test weight

Navigation: ▼ Methods > 🛠 Tests > ⚙ Test weights > ⚙ my weight 1+2 > ✎ Edit

Parameter	Description	Values
Test weight name	Defines the name of the test weight.	Text (1...22 characters)
Nominal weight	Shows the sum of the nominal weights of all the individual weights included in this combined weight.	Numeric

Minimum weight class	Defines the minimum weight class according to OIML or ASTM. The customized tolerance class Own can also be selected. When choosing the weights that compose the combined weight, only the individual weights with a class better or equal to the selected Minimum weight class are shown.	E1 E2 F1 F2 M1 M2 M3 ASTM000 ASTM00 ASTM0 ASTM0 ASTM1 ASTM2 ASTM3 ASTM4 ASTM5 ASTM6 ASTM7 Own*
Weights	Displays a list of the available individual test weights. A total of two or three individual test weights can be selected. Only the individual weights with a class better or equal to the selected Minimum weight class are shown.	List of individual test weights

* Factory setting

6.4 Tests settings

6.4.1 Settings: Eccentricity

Navigation: ▼ Methods > ⚙ Tests > ⚙ my eccentricity test > ✎ Edit

1. Name and type

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

* Factory setting

2. Test specification

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

* Factory setting

Test point

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

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

Eccentricity limits

Parameter	Description	Values
Control limit	Defines 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
Warning limit	Defines the upper or lower limit that, if exceeded or not reached, makes more stringent process monitoring necessary. The Warning limit must be smaller than the Control limit . Result if the Warning limit is exceeded: The test is passed, but the difference is higher than expected.	Numeric

3. Test weights

A configured test weight can be selected. For information on test weights definition and settings, see [Test weights ► Page 64] and [Test weights settings ► Page 166].

4. Error management

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

* Factory setting

5. Test planning

Parameter	Description	Values
Planning type	Specifies the schedule for the test to be performed. Manually: The test is performed manually. Daily: A task is generated every day at the specified time. Weekly: A task is generated at least once a week. Additional days can be selected if required. Monthly: A task is generated every month at the specified day and time. Quarterly: A task is generated every three months at the specified time. Annually: A task is generated once a year at the specified time.	Manually* Daily Weekly Monthly Quarterly Annually

Start time	Defines the time when the test is due. This setting is only available if Planning type is not set to Manually .	Time
------------	--	------

* Factory setting

Notification

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

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

Preferred days

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

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

* Factory setting

Preferred day for execution

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

Parameter	Description	Values
Day of the week	Defines the preferred day for execution of the test. If None is selected, the test will be scheduled for a month after the last execution.	None* Monday Tuesday Wednesday Thursday Friday Saturday Sunday
Week of the month	Defines on which week of the month the test is performed. This setting is only available if Day of the week is not set to None .	First* Second Third Fourth

* Factory setting

6. Printing

Parameter	Description	Values
Header and Footer	Defines the header and/or footer to be printed.	Title Title text Date/time User Signature Separating lines Group titles
Balance information	Defines which information about the balance is printed.	Balance type Balance ID Balance serial number Software version
Test summary	Defines which information about the test summary is printed.	Test type Test name Test result

Test details	Defines which test details are printed.	Test trigger Leveling at start Temperature Preparation instructions Test start (date / time) Test end (date / time) User name
Tare specification	Defines which information about the tare specification is printed. This section is only available for tests using a tare weight.	Tare name Min. tare weight
Test weight	Defines which information about the test weight is printed.	Test weight ID Weight class Nominal weight Actual weight Weight set ID Certificate ID Certificate date Next calibration date Weight type Minimum weight class Used nominal weights Used actual weights
Test limits	Defines which information about the test limits is printed.	Warning limit Control limit
Measurements / Results	Defines which information about the measurements and the results is printed.	Weight Deviation State Level state Zero / Tare Center deviation

See also

-  Defining an individual test weight ► Page 64
-  Defining a combined test weight ► Page 64
-  Creating a new test ► Page 65

6.4.2 Settings: Repeatability test

≡ Navigation: ▼ Methods >  Tests >  my repeatability test >  Edit

1. Name and type

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

* Factory setting

2. Test specification

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

* Factory setting

Tare

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

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

* Factory setting

Test point

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

* Factory setting

Test limits

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

3. Test weights

A configured test weight can be selected. For information on test weights definition and settings, see [Test weights ► Page 64] and [Test weights settings ► Page 166].

4. Error management

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

* Factory setting

5. Test planning

Parameter	Description	Values
Planning type	Specifies the schedule for the test to be performed. Manually: The test is performed manually. Daily: A task is generated every day at the specified time. Weekly: A task is generated at least once a week. Additional days can be selected if required. Monthly: A task is generated every month at the specified day and time. Quarterly: A task is generated every three months at the specified time. Annually: A task is generated once a year at the specified time.	Manually* Daily Weekly Monthly Quarterly Annually
Start time	Defines the time when the test is due. This setting is only available if Planning type is not set to Manually .	Time

* Factory setting

Notification

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

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

Preferred days

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

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

* Factory setting

Preferred day for execution

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

Parameter	Description	Values
Day of the week	Defines the preferred day for execution of the test. If None is selected, the test will be scheduled for a month after the last execution.	None* Monday Tuesday Wednesday Thursday Friday Saturday Sunday
Week of the month	Defines on which week of the month the test is performed. This setting is only available if Day of the week is not set to None .	First* Second Third Fourth

* Factory setting

6. Printing

Parameter	Description	Values
Header and Footer	Defines the header and/or footer to be printed.	Title Title text Date/time User Signature Separating lines Group titles
Balance information	Defines which information about the balance is printed.	Balance type Balance ID Balance serial number Software version
Test summary	Defines which information about the test summary is printed.	Test type Test name Test result Standard deviation
Test details	Defines which test details are printed.	Test trigger Leveling at start Temperature Preparation instructions Test start (date / time) Test end (date / time) User name
Tare specification	Defines which information about the tare specification is printed. This section is only available for tests using a tare weight.	Tare name Min. tare weight
Test weight	Defines which information about the test weight is printed.	Test weight ID Weight class Nominal weight Actual weight Weight set ID Certificate ID Certificate date Next calibration date Weight type Minimum weight class Used nominal weights Used actual weights
Test limits	Defines which information about the test limits is printed.	Warning limit Control limit
Measurements / Results	Defines which information about the measurements and the results is printed.	Weight State Level state Zero / Tare

See also

-  Defining an individual test weight ► Page 64
-  Defining a combined test weight ► Page 64
-  Creating a new test ► Page 65

6.4.3 Settings: Sensitivity test

Navigation: ▼ Methods > 🛠 Tests > 🛠 my sensitivity test > ✎ Edit

1. Name and type

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

* Factory setting

2. Test specification

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

* Factory setting

Tare

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

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

Test point

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

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

Warning limit	Defines the upper or lower limit that, if exceeded or not reached, makes more stringent process monitoring necessary. The Warning limit must be smaller than the Control limit . Result if the Warning limit is exceeded: The test is passed, but the difference is higher than expected.	Numeric
---------------	---	---------

* Factory setting

3. Test weights

A configured test weight can be selected. For information on test weights definition and settings, see [Test weights ► Page 64] and [Test weights settings ► Page 166].

4. Error management

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

* Factory setting

5. Test planning

Parameter	Description	Values
Planning type	Specifies the schedule for the test to be performed. Manually: The test is performed manually. Daily: A task is generated every day at the specified time. Weekly: A task is generated at least once a week. Additional days can be selected if required. Monthly: A task is generated every month at the specified day and time. Quarterly: A task is generated every three months at the specified time. Annually: A task is generated once a year at the specified time.	Manually* Daily Weekly Monthly Quarterly Annually
Start time	Defines the time when the test is due. This setting is only available if Planning type is not set to Manually .	Time

* Factory setting

Notification

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

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

Preferred days

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

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

* Factory setting

Preferred day for execution

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

Parameter	Description	Values
Day of the week	Defines the preferred day for execution of the test. If None is selected, the test will be scheduled for a month after the last execution.	None* Monday Tuesday Wednesday Thursday Friday Saturday Sunday
Week of the month	Defines on which week of the month the test is performed. This setting is only available if Day of the week is not set to None .	First* Second Third Fourth

* Factory setting

6. Printing

Parameter	Description	Values
Header and Footer	Defines the header and/or footer to be printed.	Title Title text Date/time User Signature Separating lines Group titles
Balance information	Defines which information about the balance is printed.	Balance type Balance ID Balance serial number Software version
Test summary	Defines which information about the test summary is printed.	Test type Test name Test result
Test details	Defines which test details are printed.	Test trigger Leveling at start Temperature Preparation instructions Test start (date / time) Test end (date / time) User name
Tare specification	Defines which information about the tare specification is printed. This section is only available for tests using a tare weight.	Tare name Min. tare weight
Test weight	Defines which information about the test weight is printed.	Test weight ID Weight class Nominal weight Actual weight Weight set ID Certificate ID Certificate date Next calibration date Weight type Minimum weight class Used nominal weights Used actual weights

Test limits	Defines which information about the test limits is printed.	Warning limit Control limit
Measurements / Results	Defines which information about the measurements and the results is printed.	Weight Deviation State Level state Zero / Tare

See also

-  Defining an individual test weight ► Page 64
-  Defining a combined test weight ► Page 64
-  Creating a new test ► Page 65

6.5 Adjustments settings

≡ Navigation: ▼ Methods >  Adjustments >  Internal adjustment >  Edit

1. Strategy

Parameter	Description	Values
Strategy	Defines the type of adjustment to be performed. When Strategy is set to No adjustment or External adjustment , no other settings are available. For approved balances, this setting is set to Internal adjustment and cannot be edited.	Internal adjustment* External adjustment No adjustment
Automatic print	When activated, the adjustment results are immediately printed on the enabled strip printer after the result has been calculated.	Active Inactive*

* Factory setting

2. Specification

Parameter	Description	Values
"As found" test	At the start of the adjustment sequence, an internal sensitivity test is automatically performed to evaluate the current status. The test results are displayed and recorded.	Active Inactive*
"As left" test	When the adjustment is complete, an internal sensitivity test is automatically performed. The test results are displayed and recorded.	Active Inactive*

* Factory setting

Limits

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

Parameter	Description	Values
Control limit	Defines the 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 upper or lower limit that, if exceeded or not reached, makes more stringent process monitoring necessary. The Warning limit must be smaller than the Control limit . Result if the Warning limit is exceeded: The adjustment is passed, but the difference is higher than expected.	Numeric (0.001...100%)

* Factory setting

3. Error management

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

* Factory setting

4. Planning

Parameter	Description	Values
Start after leveling	Defines if the internal adjustment starts after leveling.	Active Inactive*
Start after temperature change	Defines if the internal adjustment starts automatically after a temperature change of 1°C. For approved balances, this setting is set to Internal adjustment and cannot be edited. This restriction does not apply to balances of type /AC.	Active Inactive*
Schedule	Defines when the adjustment is being performed. It is possible to define between one and three start times per day. It can also be defined on which day(s) the adjustment is being performed.	Inactive 1 start time 2 start times* 3 start times
Start time 1	Defines the start time for the execution of the task. The number of start times to be defined is specified by Schedule.	Time
Preferred days	Defines the days for the scheduled adjustments. This setting is only available if Schedule is not set to Inactive.	Monday Tuesday Wednesday Thursday Friday Saturday Sunday

* Factory setting

5. Printing

Parameter	Description	Values
Header and Footer	Defines the header and/or footer to be printed.	Title Title text Date/time User Signature Separating lines Group titles
Balance information	Defines which information about the balance is printed.	Balance type Balance ID Balance serial number Software version
Adjustment summary	Defines which information about the adjustment summary is printed.	Adjustment type Adjustment status Balance adjusted
Adjustment details	Defines which adjustment details are printed.	Trigger Cell temperature Level state Date/time User name

Adjustment weight	Defines which information about the adjustment weight is printed. This section is only available if an external weight is used for the adjustment.	Test weight ID Weight class Nominal weight Actual weight Weight set ID Certificate ID Certificate date Next calibration date Weight type Minimum weight class Used nominal weights Used actual weights
Adjustment limits	Defines which information about the adjustment limits is printed. This section is only available for internal adjustments.	Warning limit Control limit
Measurements / Results	Defines which information about the measurements and the results is printed. The settings available in this section depends on the adjustment strategy.	Correction Test deviation "as found" Test deviation "as left" Test result "as found" Test result "as left"

See also

- [🔗 Defining an individual test weight ▶ Page 64](#)
- [🔗 Defining a combined test weight ▶ Page 64](#)
- [🔗 Editing an "Internal adjustment" ▶ Page 71](#)
- [🔗 Editing an "External adjustment" ▶ Page 71](#)

7 Maintenance

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

The appropriate maintenance interval depends on your standard operating procedure (SOP).

7.1 Maintenance tasks

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

See also

 Adjustments ► Page 71

 Tests ► Page 64

 Cleaning ► Page 180

 Software update ► Page 183

7.2 Cleaning

7.2.1 Disassembling the Pro draft shield for cleaning

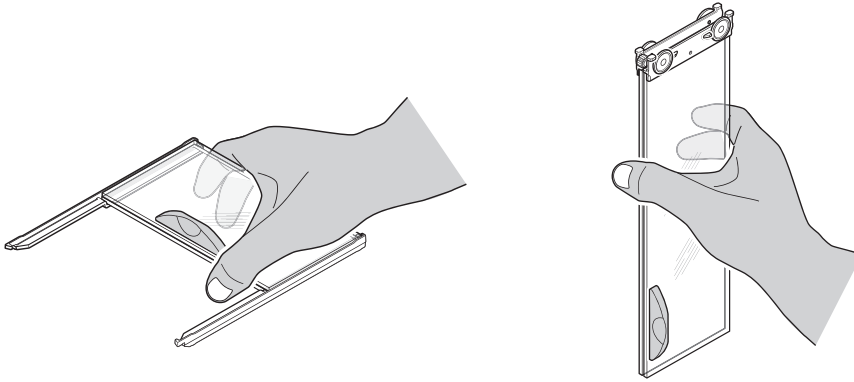


CAUTION

Injury due to sharp objects or broken glass

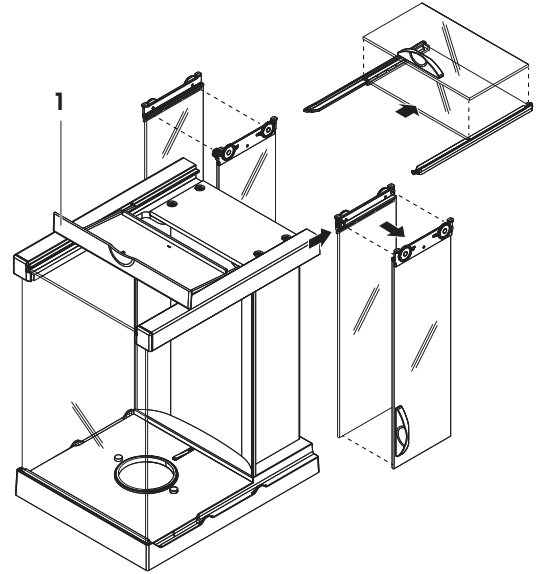
Instrument components, e.g., glass, can break and lead to injuries.

- Always proceed with focus and care.



- 1 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 drip tray.
- 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.

➔ The Pro draft shield is ready for cleaning.



7.2.2 Cleaning agents

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

		Tools				Cleaning agents					
		Paper tissue	Brush	Dishwasher	Water	Acetone	Ethanol (70%)	Isopropanol (70%)	Hydrochloric acid (3-10%)	Sodium hydroxide (0.2-1.0 M)	Peracetic acid (2-3%)
Around the balance	Balance housing	✓	R	—	R	—	R	✓	R	R	R
	Feet	✓	R	—	R	—	R	✓	R	R	R
Balance terminal	Terminal	✓	R	—	✓	PR	R	R	R	R	R
	Display	✓	—	—	✓	PR	R	R	R	R	R
	Terminal cover	✓	R	—	✓	—	R	R	R	PR	PR

		Paper tissue	Brush	Dishwasher	Water	Acetone	Ethanol (70%)	Isopropanol (70%)	Hydrochloric acid (3-10%)	Sodium hydroxide (0.2-1.0 M)	Peracetic acid (2-3%)
Balance draft shield	Glass panels	✓	R	R	R	PR	✓	✓	R	R	R
	Glass-free panels	✓	R	—	R	—	✓	✓	R	R	R
	Non-removable handles and frames	✓	R	—	R	PR	✓	✓	R	R	R
Weighing area	Weighing pan	R	R	✓	R	R	✓	✓	R	R	R
	Drip tray	R	R	✓	R	R	✓	✓	—	—	R

Legend

- ✓ Best recommendation by METTLER TOLEDO; can be used without limitation.
- R Recommended by METTLER TOLEDO; can be used without limitation.
- PR Partially recommended by METTLER TOLEDO: individual resistance to acid and alkali must be evaluated, including dependence to the time exposure.
- Not recommend. High risk for damage.

7.2.3 Cleaning the balance



NOTICE

Damage to the instrument due to inappropriate cleaning methods

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

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



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

► www.mt.com/lab-cleaning-guide

Cleaning around the balance

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

Cleaning the terminal

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

Cleaning the removable parts

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

Cleaning the weighing unit

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

7.2.4 Putting into operation after cleaning

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

See also

- 🔗 Leveling the balance ▶ Page 42
- 🔗 Technical Data ▶ Page 188
- 🔗 Performing an internal adjustment ▶ Page 42
- 🔗 Performing a "Sensitivity test" ▶ Page 68

7.3 Service

Regular servicing by an authorized service technician ensures reliability for years to come. Contact your METTLER TOLEDO representative for details about the available service options.

7.4 Software update

Search for software:

▶ www.mt.com/labweighing-software-download

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

≡ **Navigation:** ▶ **Balance menu** >  **Maintenance** >  **Software update**

See also

- 🔗 Exporting and importing settings ▶ Page 86

7.4.1 Updating the software

- A USB storage device containing the software installer (zip file format) is connected to the balance.
- 1 Tap  **Software update**.
 - 2 Select **Update software** and tap **→Next**.
 - ➔ An update wizard opens and will lead you step-by-step through the procedure.

7.4.2 Restoring the software to the previous version

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

- 1 Tap  **Software update**.
- 2 Select **Restore the software to the previous version**, and tap **→ Next**.
➔ An update wizard opens and will lead you step-by-step through the procedure.

7.4.3 Putting into operation after software update

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

See also

-  Leveling the balance ► Page 42
-  Performing an internal adjustment ► Page 42

8 Troubleshooting

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

8.1 Error messages

Error message	Possible cause	Diagnostic	Remedy
Balance reset failed	Communication failure	—	Disconnect the power cable and reconnect after a few seconds.
The system has no valid date and time set	Low battery	—	Connect to the power outlet and let the battery charge for two to three days.
Weight cannot be determined	Data signal problems of electronics.	—	Disconnect the power cable and reconnect after a few seconds.
	Bad connection between the terminal and the weighing unit.	Check the cable for damage (kinked, twisted or broken pins).	Replace the terminal cable.
	A device error has occurred.	Check if a device error is listed in the service menu, see [Service menu ► Page 111]. Tap Device errors .	Note the error code and contact your METTLER TOLEDO service representative.
Cannot start adjustment	Initial zero was not reached when the balance was switched on.	—	Disconnect the power cable and reconnect after a few seconds.
Preventive performance optimization	The balance memory (RAM) is full.	—	Complete the current task. Disconnect the power cable and reconnect after a few seconds.

See also

 Service menu ► Page 111

8.2 Error symptoms

Error symptom	Possible cause	Diagnostic	Remedy
The display is dark.	The instrument is on standby.	—	Switch on the instrument.
	There is no power.	Check the connection to the AC/DC adapter and the power outlet.	Connect the weighing unit to the power outlet. See "Connecting the balance".
	The terminal is not connected to the instrument.	Check the terminal cable connection.	Connect the terminal cable to the instrument.
	The terminal cable is defective.	Check the cable for damage (kinked, twisted or broken pins).	Replace the terminal cable.
	The wrong AC/DC adapter is connected to the instrument.	Check it, see "Technical Data".	Use the correct AC/DC adapter.

Error symptom	Possible cause	Diagnostic	Remedy
	The AC/DC adapter is defective.	—	Replace the AC/DC adapter.
The value on the display oscillates.	Vibrations on the weighing bench, e.g., building vibrations, foot traffic	Place a beaker with water on the weighing bench. Vibrations cause ripples on the water surface.	Protect the weighing location against vibrations, e.g. with an absorber. Find a different weighing location.
	Draft due to untight draft shield and/or open window.	Check the draft shield for gaps.	Fix the draft shield. Close the window.
	The weighing sample is electrostatically charged.	Check if the weighing result is stable when using a test weight.	Increase the air humidity in the weighing chamber. Use an ionizer. See "Accessories".
	The location is not suitable for weighing.	—	Follow the requirements for the location. See "Selecting the location".
	Something is touching the weighing pan.	Check for touching parts or dirt.	Remove touching parts. Clean the balance.
The value on the display is drifting towards plus or minus.	The weighing sample absorbs moisture or evaporates moisture.	Check if the weighing result is stable when using a test weight.	Cover the weighing sample.
	The weighing sample is electrostatically charged.	Check if the weighing result is stable when using a test weight.	Increase the air humidity in the weighing chamber. Use an ionizer. See "Accessories".
	The weighing sample is warmer or colder than the air in the weighing chamber.	Check if the weighing result is stable when using an acclimatized test weight.	Bring the sample to room temperature.
	The balance has not yet warmed up.	—	Let the balance warm up. Adequate warm-up time is specified in the "General data".
The display shows overload or underload.	The wrong weighing pan is installed.	Slightly lift or press the weighing pan to see if the weight appears on the display.	Install the proper weighing pan.
	No weighing pan is installed.	—	Install the proper weighing pan.
	Incorrect zero point at power on.	—	Disconnect the power cable and reconnect after a few seconds.
	The balance is not adjusted.	—	Perform an internal adjustment. See "Internal adjustment".
The draft shield front panel is not exactly 90° from the weighing platform	The draft shield front panel is not perfectly adjusted.	—	Contact your METTLER TOLEDO service representative to adjust the front panel.

Error symptom	Possible cause	Diagnostic	Remedy
The draft shield side doors are not exactly closed.	The draft shield side doors are not perfectly adjusted.	–	Contact your METTLER TOLEDO service representative to adjust the side doors.
The user interface responds slowly.	Too many results are included in the Results list of a task.	Check the Results list of every running and pending task.	Complete all tasks: For each task in the list of Tasks , select the task, tap Continue task , and tap Complete .

8.3 Putting into operation after fixing an error

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

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

9 Technical Data

9.1 General data

Power supply

AC/DC adapter (model no. FSP060-DHAN3):

Input: 100 – 240 V AC $\pm$ 10%, 50 – 60 Hz, 1.8 A

Output: 12 V DC, 5 A, LPS, SELV

AC/DC adapter (model no. FSP060-DIBAN2):

Input: 100 – 240 V AC $\pm$ 10%, 50 – 60 Hz, 1.5 A

Output: 12 V DC, 5 A, LPS, SELV

Cable for AC/DC adapter:

3-core, with country-specific plug

Balance power consumption:

12 V DC $\pm$ 10%, 2.25 A

Polarity:



Protection and standards

Overvoltage category:

II

Degree of pollution:

2

Standards for safety and EMC:

See Declaration of Conformity

Range of application:

Use only indoors in dry locations

Environmental conditions

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

Height above mean sea level:

Up to 5000 m

Ambient temperature:

+10 – +30 °C

Temperature change, max.:

5 °C/h

Relative air humidity:

30 – 70%, non-condensing

Acclimatization time:

At least **4 hours** after placing the instrument in the same location where it will be put into operation.

Warm-up time:

At least **30 minutes** after connecting the balance to the power supply. When switched on from standby, the instrument is ready for operation immediately.

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

Ambient temperature:

+5 °C – +40 °C

Relative air humidity:

20% to max. 80% at 31 °C, decreasing linearly to 50% at 40 °C, non-condensing

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

Ambient temperature:

-25 – +70 °C

Relative air humidity:

10 – 90%, non-condensing

Environmental conditions for comparators

Comparators need to be used under the following environmental conditions to reach the specified performances:

Acclimatization time:

At least **8 hours** after placing the instrument in the same location where it will be put into operation.

Warm-up time:

At least **60 minutes** after connecting the balance to the power supply. When switched on from standby, the instrument is ready for operation immediately.

Air speed, max.:

0.15 m/s

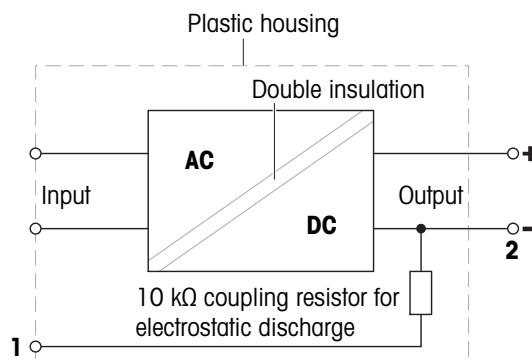
9.2 Explanatory notes for the METTLER TOLEDO AC/DC adapter

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

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

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

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



9.3 Model-specific data

9.3.1 Balances with S weighing platform

9.3.1.1 Readability 0.1 mg, with Pro draft shield and SmartPan Pro weighing pan

	XPR204S	XPR404S	XPR504S
Limit values			
Capacity	210 g	410 g	510 g
Nominal load	200 g	400 g	500 g
Readability	0.1 mg	0.1 mg	0.1 mg
Capacity of fine range	–	–	–
Readability in fine range	–	–	–
Repeatability	0.2 mg	0.1 mg	0.1 mg
Repeatability in fine range	–	–	–
Linearity deviation	0.2 mg	0.2 mg	0.3 mg
Eccentricity deviation (at test load)	0.3 mg (100 g)	0.3 mg (200 g)	0.4 mg (200 g)
Sensitivity offset (at nominal load) ▲	0.6 mg	2 mg	2 mg
Sensitivity temperature drift	0.0001%/°C	0.00015%/°C	0.00015%/°C
Typical values			
Repeatability	0.12 mg	0.06 mg	0.07 mg
Repeatability in fine range	–	–	–
Linearity deviation	0.06 mg	0.06 mg	0.2 mg
Eccentricity deviation (at test load)	0.1 mg (100 g)	0.1 mg (200 g)	0.1 mg (200 g)
Sensitivity offset (at nominal load) ▲	0.4 mg	0.48 mg	0.3 mg
Minimum weight (USP, tolerance = 0.10%) ▼	240 mg	120 mg	140 mg
Minimum weight (tolerance = 1%) ▼	24 mg	12 mg	14 mg
Settling time	2 s	2 s	2 s
Dimensions and other specifications			
Balance dimensions (W × D × H)	214 × 411 × 368 mm	214 × 411 × 368 mm	214 × 411 × 368 mm
Weighing pan dimensions (W × D)	90 × 90 mm	90 × 90 mm	90 × 90 mm
Weighing pan diameter	–	–	–
Usable height of draft shield	245 mm	245 mm	245 mm
Balance weight	7.8 kg	7.8 kg	7.8 kg
Weights for routine testing			
Weights (OIML class)	200 g (F2) / 10 g (F2)	200 g (F2) / 20 g (F2)	500 g (F2) / 20 g (F2)
Weights (ASTM class)	200 g (ASTM 1) / 10 g (ASTM 1)	200 g (ASTM 1) / 20 g (ASTM 1)	500 g (ASTM 1) / 20 g (ASTM 1)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.1.2 Readability 5 mg, with Pro draft shield and SmartPan Pro weighing pan

	XPR3004SD5
Limit values	
Capacity	3.1 kg
Nominal load	3000 g
Readability	0.5 mg
Capacity of fine range	–
Readability in fine range	–
Repeatability	0.8 mg
Repeatability in fine range	–
Linearity deviation	4 mg
Eccentricity deviation (at test load)	10 mg (1000 g)
Sensitivity offset (at nominal load) ▲	9 mg
Sensitivity temperature drift	0.0003%/°C
Typical values	
Repeatability	0.4 mg
Repeatability in fine range	–
Linearity deviation	1 mg
Eccentricity deviation (at test load)	3 mg (1000 g)
Sensitivity offset (at nominal load) ▲	5 mg
Minimum weight (USP, tolerance = 0.10%) ▼	800 mg
Minimum weight (tolerance = 1%) ▼	80 mg
Settling time	2 s
Dimensions and other specifications	
Balance dimensions (W × D × H)	214 × 411 × 368 mm
Weighing pan dimensions (W × D)	127 × 127 mm
Weighing pan diameter	–
Usable height of draft shield	245 mm
Balance weight	8.4 kg
Weights for routine testing	
Weights (OIML class)	2 kg (F2) / 100 g (F2)
Weights (ASTM class)	2 kg (ASTM 1) / 100 g (ASTM 1)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.1.3 Readability 1 mg, with Pro draft shield and SmartPan Pro weighing pan

	XPR303S	XPR603S	XPR1203S
Limit values			
Capacity	310 g	610 g	1210 g
Nominal load	300 g	600 g	1200 g
Readability	1 mg	1 mg	1 mg
Capacity of fine range	–	–	–
Readability in fine range	–	–	–
Repeatability	0.8 mg	0.8 mg	0.8 mg
Repeatability in fine range	–	–	–
Linearity deviation	2 mg	2 mg	2 mg
Eccentricity deviation (at test load)	3 mg (100 g)	3 mg (200 g)	3 mg (500 g)
Sensitivity offset (at nominal load) ▲	6 mg	4.5 mg	6 mg
Sensitivity temperature drift	0.0005%/°C	0.0002%/°C	0.0002%/°C
Typical values			
Repeatability	0.4 mg	0.4 mg	0.4 mg
Repeatability in fine range	–	–	–
Linearity deviation	0.6 mg	0.6 mg	0.6 mg
Eccentricity deviation (at test load)	1 mg (100 g)	1 mg (200 g)	1 mg (500 g)
Sensitivity offset (at nominal load) ▲	1.2 mg	1.2 mg	4 mg
Minimum weight (USP, tolerance = 0.10%) ▼	820 mg	820 mg	820 mg
Minimum weight (tolerance = 1%) ▼	82 mg	82 mg	82 mg
Settling time	1.5 s	1.5 s	1.5 s
Dimensions and 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
Weighing pan diameter	–	–	–
Usable height of draft shield	245 mm	245 mm	245 mm
Balance weight	8.4 kg	8.4 kg	8.4 kg
Weights for routine testing			
Weights (OIML class)	200 g (F2) / 10 g (F2)	500 g (F2) / 20 g (F2)	1000 g (F2) / 50 g (F2)
Weights (ASTM class)	200 g (ASTM 1) / 10 g (ASTM 1)	500 g (ASTM 1) / 20 g (ASTM 1)	1000 g (ASTM 1) / 50 g (ASTM 1)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

	XPR2003S	XPR3003S	XPR5003S
Limit values			
Capacity	2.1 kg	3.1 kg	5.1 kg
Nominal load	2000 g	3000 g	5000 g
Readability	1 mg	1 mg	1 mg
Capacity of fine range	–	–	–
Readability in fine range	–	–	–
Repeatability	1 mg	0.9 mg	1.4 mg
Repeatability in fine range	–	–	–
Linearity deviation	3 mg	6 mg	6 mg
Eccentricity deviation (at test load)	10 mg (1 kg)	10 mg (1000 g)	10 mg (2 kg)
Sensitivity offset (at nominal load) ▲	6 mg	9 mg	12.5 mg
Sensitivity temperature drift	0.00025%/°C	0.0003%/°C	0.0003%/°C
Typical values			
Repeatability	0.6 mg	0.6 mg	0.9 mg
Repeatability in fine range	–	–	–
Linearity deviation	1 mg	2 mg	2 mg
Eccentricity deviation (at test load)	3 mg (1 kg)	3 mg (1000 g)	3 mg (2 kg)
Sensitivity offset (at nominal load) ▲	4 mg	1.8 mg	3 mg
Minimum weight (USP, tolerance = 0.10%) ▼	1.2 g	1.2 g	1.8 g
Minimum weight (tolerance = 1%) ▼	120 mg	120 mg	180 mg
Settling time	1.5 s	2 s	2 s
Dimensions and 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
Weighing pan diameter	–	–	–
Usable height of draft shield	245 mm	245 mm	245 mm
Balance weight	8.4 kg	8.4 kg	8.5 kg
Weights for routine testing			
Weights (OIML class)	2 kg (F2) / 100 g (F2)	2 kg (F2) / 100 g (F2)	5 kg (F2) / 200 g (F2)
Weights (ASTM class)	2 kg (ASTM 1) / 100 g (ASTM 1)	2 kg (ASTM 1) / 100 g (ASTM 1)	5 kg (ASTM 4) / 200 g (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.1.4 Readability 1 mg, with SmartPan Pro weighing pan

	XPR303SN	XPR603SN	XPR1203SN
Limit values			
Capacity	310 g	610 g	1210 g
Nominal load	300 g	600 g	1200 g
Readability	1 mg	1 mg	1 mg
Capacity of fine range	–	–	–
Readability in fine range	–	–	–
Repeatability	0.8 mg	0.8 mg	0.8 mg
Repeatability in fine range	–	–	–
Linearity deviation	2 mg	2 mg	2 mg
Eccentricity deviation (at test load)	3 mg (100 g)	3 mg (200 g)	3 mg (500 g)
Sensitivity offset (at nominal load) ▲	6 mg	4.5 mg	6 mg
Sensitivity temperature drift	0.0005%/°C	0.0002%/°C	0.0002%/°C
Typical values			
Repeatability	0.4 mg	0.4 mg	0.4 mg
Repeatability in fine range	–	–	–
Linearity deviation	0.6 mg	0.6 mg	0.6 mg
Eccentricity deviation (at test load)	1 mg (100 g)	1 mg (200 g)	1 mg (500 g)
Sensitivity offset (at nominal load) ▲	1.2 mg	1.2 mg	4 mg
Minimum weight (USP, tolerance = 0.10%) ▼	820 mg	820 mg	820 mg
Minimum weight (tolerance = 1%) ▼	82 mg	82 mg	82 mg
Settling time	1.5 s	1.5 s	1.5 s
Dimensions and other specifications			
Balance dimensions (W × D × H)	214 × 411 × 102 mm	214 × 411 × 102 mm	214 × 411 × 102 mm
Weighing pan dimensions (W × D)	127 × 127 mm	127 × 127 mm	127 × 127 mm
Weighing pan diameter	–	–	–
Usable height of draft shield	–	–	–
Balance weight	5.7 kg	5.7 kg	5.7 kg
Weights for routine testing			
Weights (OIML class)	200 g (F2) / 10 g (F2)	500 g (F2) / 20 g (F2)	1000 g (F2) / 50 g (F2)
Weights (ASTM class)	200 g (ASTM 1) / 10 g (ASTM 1)	500 g (ASTM 1) / 20 g (ASTM 1)	1000 g (ASTM 1) / 50 g (ASTM 1)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.1.5 Readability 5 mg, with SmartPan Pro weighing pan

	XPR6003SD5	XPR12003SD5
Limit values		
Capacity	6.1 kg	12.1 kg
Nominal load	6000 g	12000 g
Readability	5 mg	5 mg
Capacity of fine range	–	–
Readability in fine range	–	–
Repeatability	6 mg	6 mg
Repeatability in fine range	–	–
Linearity deviation	7 mg	20 mg
Eccentricity deviation (at test load)	30 mg (2 kg)	40 mg (5 kg)
Sensitivity offset (at nominal load) ▲	21 mg	60 mg
Sensitivity temperature drift	0.0003%/°C	0.0003%/°C
Typical values		
Repeatability	3 mg	3 mg
Repeatability in fine range	–	–
Linearity deviation	2 mg	6 mg
Eccentricity deviation (at test load)	10 mg (2 kg)	12 mg (5 kg)
Sensitivity offset (at nominal load) ▲	5 mg	30 mg
Minimum weight (USP, tolerance = 0.10%) ▼	6 g	6 g
Minimum weight (tolerance = 1%) ▼	600 mg	600 mg
Settling time	2 s	2 s
Dimensions and other specifications		
Balance dimensions (W × D × H)	214 × 411 × 102 mm	214 × 411 × 102 mm
Weighing pan dimensions (W × D)	170 × 203 mm	170 × 203 mm
Weighing pan diameter	–	–
Usable height of draft shield	–	–
Balance weight	7.6 kg	8.4 kg
Weights for routine testing		
Weights (OIML class)	5 kg (F2) / 200 g (F2)	2 kg (F2) / 100 g (F2)
Weights (ASTM class)	5 kg (ASTM 4) / 200 g (ASTM 4)	2 kg (ASTM 1) / 100 g (ASTM 1)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.1.6 Readability 10 mg, with SmartPan Pro weighing pan

	XPR1202S	XPR2002S	XPR4002S
Limit values			
Capacity	1210 g	2.1 kg	4.1 kg
Nominal load	1200 g	2000 g	4000 g
Readability	0.01 g	0.01 g	10 mg
Capacity of fine range	–	–	–
Readability in fine range	–	–	–
Repeatability	8 mg	8 mg	8 mg
Repeatability in fine range	–	–	–
Linearity deviation	20 mg	20 mg	20 mg
Eccentricity deviation (at test load)	20 mg (500 g)	30 mg (1000 g)	30 mg (2 kg)
Sensitivity offset (at nominal load) ▲	60 mg	60 mg	60 mg
Sensitivity temperature drift	0.0003%/°C	0.0003%/°C	0.0003%/°C
Typical values			
Repeatability	4 mg	4 mg	4 mg
Repeatability in fine range	–	–	–
Linearity deviation	6 mg	6 mg	6 mg
Eccentricity deviation (at test load)	6 mg (500 g)	10 mg (1000 g)	10 mg (2 kg)
Sensitivity offset (at nominal load) ▲	15 mg	25 mg	25 mg
Minimum weight (USP, tolerance = 0.10%) ▼	8.2 g	8.2 g	8.2 g
Minimum weight (tolerance = 1%) ▼	820 mg	820 mg	820 mg
Settling time	1.2 s	1.2 s	1.2 s
Dimensions and other specifications			
Balance dimensions (W × D × H)	214 × 411 × 102 mm	214 × 411 × 102 mm	214 × 411 × 102 mm
Weighing pan dimensions (W × D)	170 × 203 mm	170 × 203 mm	170 × 203 mm
Weighing pan diameter	–	–	–
Usable height of draft shield	–	–	–
Balance weight	7.3 kg	8.2 kg	7.9 kg
Weights for routine testing			
Weights (OIML class)	1000 g (F2) / 50 g (F2)	2 kg (F2) / 100 g (F2)	2 kg (F2) / 200 g (F2)
Weights (ASTM class)	1000 g (ASTM 1) / 50 g (ASTM 1)	2 kg (ASTM 1) / 100 g (ASTM 1)	2 kg (ASTM 1) / 200 g (ASTM 1)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

	XPR6002S	XPR6002SDR
Limit values		
Capacity	6.1 kg	6.1 kg
Nominal load	6000 g	6000 g
Readability	0.01 g	0.1 g
Capacity of fine range	–	1200 g
Readability in fine range	–	0.01 g
Repeatability	8 mg	60 mg
Repeatability in fine range	–	8 mg
Linearity deviation	20 mg	60 mg
Eccentricity deviation (at test load)	30 mg (2 kg)	100 mg (2 kg)
Sensitivity offset (at nominal load) ▲	60 mg	150 mg
Sensitivity temperature drift	0.0003%/°C	0.0003%/°C
Typical values		
Repeatability	4 mg	40 mg
Repeatability in fine range	–	5 mg
Linearity deviation	6 mg	20 mg
Eccentricity deviation (at test load)	10 mg (2 kg)	30 mg (2 kg)
Sensitivity offset (at nominal load) ▲	12 mg	30 mg
Minimum weight (USP, tolerance = 0.10%) ▼	8.2 g	10 g
Minimum weight (tolerance = 1%) ▼	820 mg	1 g
Settling time	1.2 s	1.2 s
Dimensions and other specifications		
Balance dimensions (W × D × H)	214 × 411 × 102 mm	214 × 411 × 102 mm
Weighing pan dimensions (W × D)	170 × 203 mm	170 × 203 mm
Weighing pan diameter	–	–
Usable height of draft shield	–	–
Balance weight	8.2 kg	8.2 kg
Weights for routine testing		
Weights (OIML class)	5 kg (F2) / 200 g (F2)	5 kg (F2) / 200 g (F2)
Weights (ASTM class)	5 kg (ASTM 4) / 200 g (ASTM 4)	5 kg (ASTM 4) / 200 g (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

	XPR8002S	XPR12002S
Limit values		
Capacity	8.1 kg	12.1 kg
Nominal load	8000 g	12000 g
Readability	0.01 g	0.01 g
Capacity of fine range	–	–
Readability in fine range	–	–
Repeatability	8 mg	8 mg
Repeatability in fine range	–	–
Linearity deviation	20 mg	20 mg
Eccentricity deviation (at test load)	40 mg (5 kg)	40 mg (5 kg)
Sensitivity offset (at nominal load) ▲	60 mg	60 mg
Sensitivity temperature drift	0.00025%/°C	0.00025%/°C
Typical values		
Repeatability	4 mg	4 mg
Repeatability in fine range	–	–
Linearity deviation	6 mg	6 mg
Eccentricity deviation (at test load)	12 mg (5 kg)	12 mg (5 kg)
Sensitivity offset (at nominal load) ▲	12 mg	30 mg
Minimum weight (USP, tolerance = 0.10%) ▼	8.2 g	8.2 g
Minimum weight (tolerance = 1%) ▼	820 mg	820 mg
Settling time	1.5 s	1.5 s
Dimensions and other specifications		
Balance dimensions (W × D × H)	214 × 411 × 102 mm	214 × 411 × 102 mm
Weighing pan dimensions (W × D)	170 × 203 mm	170 × 203 mm
Weighing pan diameter	–	–
Usable height of draft shield	–	–
Balance weight	7.7 kg	7.7 kg
Weights for routine testing		
Weights (OIML class)	5 kg (F2) / 200 g (F2)	10 kg (F2) / 500 g (F2)
Weights (ASTM class)	5 kg (ASTM 4) / 200 g (ASTM 4)	10 kg (ASTM 4) / 500 g (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.1.7 Readability 100 mg

	XPR4001S	XPR8001S	XPR12001S
Limit values			
Capacity	4.1 kg	8.1 kg	12.1 kg
Nominal load	4000 g	8000 g	12000 g
Readability	0.1 g	0.1 g	0.1 g
Capacity of fine range	–	–	–
Readability in fine range	–	–	–
Repeatability	80 mg	80 mg	80 mg
Repeatability in fine range	–	–	–
Linearity deviation	60 mg	100 mg	100 mg
Eccentricity deviation (at test load)	200 mg (2 kg)	200 mg (5 kg)	200 mg (5 kg)
Sensitivity offset (at nominal load) ▲	240 mg	600 mg	600 mg
Sensitivity temperature drift	0.0015%/°C	0.0015%/°C	0.0015%/°C
Typical values			
Repeatability	40 mg	40 mg	40 mg
Repeatability in fine range	–	–	–
Linearity deviation	20 mg	30 mg	30 mg
Eccentricity deviation (at test load)	60 mg (2 kg)	60 mg (5 kg)	60 mg (5 kg)
Sensitivity offset (at nominal load) ▲	50 mg	120 mg	300 mg
Minimum weight (USP, tolerance = 0.10%) ▼	82 g	82 g	82 g
Minimum weight (tolerance = 1%) ▼	8.2 g	8.2 g	8.2 g
Settling time	0.8 s	1 s	1 s
Dimensions and other specifications			
Balance dimensions (W × D × H)	214 × 411 × 99 mm	214 × 411 × 99 mm	214 × 411 × 99 mm
Weighing pan dimensions (W × D)	190 × 223 mm	190 × 223 mm	190 × 223 mm
Weighing pan diameter	–	–	–
Usable height of draft shield	–	–	–
Balance weight	6.6 kg	6.6 kg	6.6 kg
Weights for routine testing			
Weights (OIML class)	2 kg (F2) / 200 g (F2)	5 kg (F2) / 200 g (F2)	10 kg (F2) / 500 g (F2)
Weights (ASTM class)	2 kg (ASTM 4) / 200 g (ASTM 4)	5 kg (ASTM 4) / 200 g (ASTM 4)	10 kg (ASTM 4) / 500 g (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.2 Comparators with S weighing platform

9.3.2.1 Redability 0.1 mg, with Pro draft shield

	XPR2004SC	XPR5004SC
Limit values		
Capacity	2.3 kg	5.1 kg
Nominal load	2 kg	5 kg
Readability	0.1 mg	0.1 mg
Capacity of fine range	–	–
Readability in fine range	–	–
Repeatability	0.6 mg	1.3 mg
Repeatability in fine range	–	–
Repeatability ABA (5 cycles at nominal load)	0.25 mg	0.5 mg
Repeatability ABA (5 cycles at 5% load)	0.1 mg	0.5 mg
Linearity deviation	1 mg	3 mg
Eccentricity deviation (at test load)	2 mg (1000 g)	10 mg (2 kg)
Eccentricity deviation with LEVEL-MATIC or hanging pan (at test load)	0 mg (1000 g)	0 mg (2 kg)
Sensitivity offset (at nominal load) ▲	10 mg	15 mg
Sensitivity temperature drift	0.0003%/°C	0.0003%/°C
Typical values		
Repeatability	0.3 mg	0.8 mg
Repeatability in fine range	–	–
Repeatability (at 5% load)	–	–
Repeatability ABA (5 cycles at nominal load)	0.15 mg	0.4 mg
Repeatability ABA (5 cycles at 5% load)	0.1 mg	0.4 mg
Linearity deviation	0.5 mg	1 mg
Eccentricity deviation (at test load)	–	3 mg (2 kg)
Sensitivity offset (at nominal load) ▲	6.8 mg	8 mg
Minimum weight (USP, tolerance = 0.10%) ▼	600 mg	1600 mg
Minimum weight (tolerance = 1%) ▼	60 mg	160 mg
Settling time	3.5 s	10 s
Dimensions and other specifications		
Balance dimensions (W × D × H)	214 × 411 × 368 mm	214 × 411 × 368 mm
Weighing pan dimensions (W × D)	90 × 90 mm	90 × 90 mm
Weighing pan diameter	130 mm	130 mm
Usable height of draft shield	235 mm	235 mm
Balance weight	8.6 kg	8.7 kg
Weights for routine testing		
Weights (OIML class)	2 kg (F2) / 100 g (F2)	5 kg (F2) / 200 g (F2)
Weights (ASTM class)	2 kg (ASTM 1) / 100 g (ASTM 1)	5 kg (ASTM 4) / 200 g (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.2.2 Readability 1 mg

	XPR2003SC	XPR5003SC	XPR10003SC
Limit values			
Capacity	2.3 kg	5.1 kg	10.1 kg
Nominal load	2 kg	5 kg	10 kg
Readability	1 mg	1 mg	1 mg
Capacity of fine range	–	–	–
Readability in fine range	–	–	–
Repeatability	1 mg	1.5 mg	3.5 mg
Repeatability in fine range	–	–	–
Repeatability ABA (5 cycles at nominal load)	0.8 mg	0.8 mg	1.5 mg
Repeatability ABA (5 cycles at 5% load)	0.6 mg	0.8 mg	1.2 mg
Linearity deviation	2 mg	3 mg	7 mg
Eccentricity deviation (at test load)	4 mg (1000 g)	10 mg (2 kg)	20 mg (5 kg)
Eccentricity deviation with LEVEL-MATIC or hanging pan (at test load)	0 mg (1000 g)	0 mg (2 kg)	0 mg (5 kg)
Sensitivity offset (at nominal load) ▲	10 mg	15 mg	50 mg
Sensitivity temperature drift	0.0003%/°C	0.0003%/°C	0.00025%/°C
Typical values			
Repeatability	0.6 mg	1 mg	2 mg
Repeatability in fine range	–	–	–
Repeatability (at 5% load)	–	–	–
Repeatability ABA (5 cycles at nominal load)	0.5 mg	0.7 mg	0.8 mg
Repeatability ABA (5 cycles at 5% load)	0.6 mg	0.7 mg	1.2 mg
Linearity deviation	0.7 mg	1 mg	3.2 mg
Eccentricity deviation (at test load)	2.6 mg (1000 g)	3 mg (2 kg)	–
Sensitivity offset (at nominal load) ▲	6.8 mg	8 mg	34 mg
Minimum weight (USP, tolerance = 0.10%) ▼	1.2 g	2 g	4 g
Minimum weight (tolerance = 1%) ▼	0.12 g	0.2 g	0.4 g
Settling time	3.5 s	3.5 s	3.5 s
Dimensions and other specifications			
Balance dimensions (W × D × H)	214 × 411 × 368 mm	214 × 411 × 368 mm	214 × 411 × 115 mm
Weighing pan dimensions (W × D)	127 × 127 mm	127 × 127 mm	127 × 127 mm
Weighing pan diameter	–	130 mm	130 mm
Usable height of draft shield	245 mm	235 mm	–
Balance weight	8.7 kg	8.7 kg	5.7 kg
Weights for routine testing			
Weights (OIML class)	2 kg (F2) / 100 g (F2)	5 kg (F2) / 200 g (F2)	10 kg (F2) / 500 g (F2)
Weights (ASTM class)	2 kg (ASTM 1) / 100 g (ASTM 1)	5 kg (ASTM 4) / 200 g (ASTM 4)	10 kg (ASTM 4) / 500 g (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.3 Balances with L weighing platform

9.3.3.1 Readability 10 mg, with SmartPan weighing pan

	XPR15002L	XPR20002LDR
Limit values		
Capacity	15.1 kg	20.1 kg
Nominal load	15 kg	20 kg
Readability	0.01 g	0.1 g
Capacity of fine range	–	4.2 kg
Readability in fine range	–	0.01 g
Repeatability	15 mg	80 mg
Repeatability in fine range	–	30 mg
Linearity deviation	20 mg	60 mg
Eccentricity deviation (at test load)	80 mg (5 kg)	120 mg (10 kg)
Sensitivity offset (at nominal load) ▲	60 mg	100 mg
Sensitivity temperature drift	0.0015%/°C	0.0015%/°C
Typical values		
Repeatability	10 mg	60 mg
Repeatability in fine range	–	18 mg
Linearity deviation	6 mg	20 mg
Eccentricity deviation (at test load)	25 mg (5 kg)	40 mg (10 kg)
Sensitivity offset (at nominal load) ▲	12 mg	25 mg
Minimum weight (USP, tolerance = 0.10%) ▼	20 g	36 g
Minimum weight (tolerance = 1%) ▼	2 g	3.6 g
Settling time	1.5 s	1.5 s
Dimensions and other specifications		
Balance dimensions (W × D × H)	360 × 434 × 147 mm	360 × 434 × 147 mm
Weighing pan dimensions (W × D)	203 × 170 mm	203 × 170 mm
Weighing pan diameter	–	–
Usable height of draft shield	–	–
Balance weight	12.7 kg	12.7 kg
Weights for routine testing		
Weights (OIML class)	10 kg (F2) / 500 g (F2)	20 kg (F2) / 1000 g (F2)
Weights (ASTM class)	10 kg (ASTM 4) / 500 g (ASTM 4)	20 kg (ASTM 4) / 1000 g (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.3.2 Readability 100 mg

	XPR10001L	XPR16001L
Limit values		
Capacity	10.1 kg	16.1 kg
Nominal load	10 kg	16 kg
Readability	0.1 g	0.1 g
Capacity of fine range	–	–
Readability in fine range	–	–
Repeatability	80 mg	80 mg
Repeatability in fine range	–	–
Linearity deviation	200 mg	200 mg
Eccentricity deviation (at test load)	300 mg (5 kg)	300 mg (5 kg)
Sensitivity offset (at nominal load) ▲	500 mg	800 mg
Sensitivity temperature drift	0.0015%/°C	0.0015%/°C
Typical values		
Repeatability	40 mg	40 mg
Repeatability in fine range	–	–
Linearity deviation	60 mg	60 mg
Eccentricity deviation (at test load)	100 mg (5 kg)	100 mg (5 kg)
Sensitivity offset (at nominal load) ▲	120 mg	200 mg
Minimum weight (USP, tolerance = 0.10%) ▼	82 g	82 g
Minimum weight (tolerance = 1%) ▼	8.2 g	8.2 g
Settling time	1.5 s	1.5 s
Dimensions and 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
Weighing pan diameter	–	–
Usable height of draft shield	–	–
Balance weight	10.3 kg	10.3 kg
Weights for routine testing		
Weights (OIML class)	10 kg (F2) / 500 g (F2)	10 kg (F2) / 500 g (F2)
Weights (ASTM class)	10 kg (ASTM 4) / 500 g (ASTM 4)	10 kg (ASTM 4) / 500 g (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

	XPR32001L	XPR64001L
Limit values		
Capacity	32.1 kg	64.1 kg
Nominal load	32 kg	64 kg
Readability	0.1 g	0.1 g
Capacity of fine range	–	–
Readability in fine range	–	–
Repeatability	80 mg	100 mg
Repeatability in fine range	–	–
Linearity deviation	300 mg	500 mg
Eccentricity deviation (at test load)	300 mg (10 kg)	500 mg (20 kg)
Sensitivity offset (at nominal load) ▲	960 mg	1.28 g
Sensitivity temperature drift	0.001%/°C	0.001%/°C
Typical values		
Repeatability	40 mg	40 mg
Repeatability in fine range	–	–
Linearity deviation	100 mg	150 mg
Eccentricity deviation (at test load)	100 mg (10 kg)	150 mg (20 kg)
Sensitivity offset (at nominal load) ▲	250 mg	300 mg
Minimum weight (USP, tolerance = 0.10%) ▼	82 g	82 g
Minimum weight (tolerance = 1%) ▼	8.2 g	8.2 g
Settling time	1.5 s	1.8 s
Dimensions and 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
Weighing pan diameter	–	–
Usable height of draft shield	–	–
Balance weight	10.3 kg	12 kg
Weights for routine testing		
Weights (OIML class)	20 kg (F2) / 1000 g (F2)	50 kg (F2) / 2 kg (F2)
Weights (ASTM class)	20 kg (ASTM 4) / 1000 g (ASTM 4)	50 kg (ASTM 4) / 2 kg (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.3.3 Readability 1 g

	XPR32000L	XPR64000L
Limit values		
Capacity	32.1 kg	64.1 kg
Nominal load	30 kg	60 kg
Readability	1 g	1 g
Capacity of fine range	–	–
Readability in fine range	–	–
Repeatability	600 mg	600 mg
Repeatability in fine range	–	–
Linearity deviation	600 mg	600 mg
Eccentricity deviation (at test load)	1 g (10 kg)	1 g (20 kg)
Sensitivity offset (at nominal load) ▲	1.6 g	1.92 g
Sensitivity temperature drift	0.0015%/°C	0.0015%/°C
Typical values		
Repeatability	400 mg	400 mg
Repeatability in fine range	–	–
Linearity deviation	200 mg	200 mg
Eccentricity deviation (at test load)	300 mg (10 kg)	300 mg (20 kg)
Sensitivity offset (at nominal load) ▲	320 mg	320 mg
Minimum weight (USP, tolerance = 0.10%) ▼	820 g	820 g
Minimum weight (tolerance = 1%) ▼	82 g	82 g
Settling time	1.2 s	1.5 s
Dimensions and 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
Weighing pan diameter	–	–
Usable height of draft shield	–	–
Balance weight	10.3 kg	12 kg
Weights for routine testing		
Weights (OIML class)	20 kg (F2) / 1000 g (F2)	50 kg (F2) / 2 kg (F2)
Weights (ASTM class)	20 kg (ASTM 4) / 1000 g (ASTM 4)	50 kg (ASTM 4) / 2 kg (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.4 Comparators with L weighing platform

9.3.4.1 Redability 1 mg

	XPR26003LC
Limit values	
Capacity	26.1 kg
Nominal load	26 kg
Readability	1 mg
Capacity of fine range	–
Readability in fine range	–
Repeatability	6 mg
Repeatability in fine range	–
Repeatability ABA (5 cycles at nominal load)	2.5 mg
Repeatability ABA (5 cycles at 5% load)	2 mg
Linearity deviation	20 mg
Eccentricity deviation (at test load)	0.3 g (10 kg)
Eccentricity deviation with LEVEL-MATIC or hanging pan (at test load)	0 mg (10 kg)
Sensitivity offset (at nominal load) ▲	0.2 g
Sensitivity temperature drift	0.0003%/°C
Typical values	
Repeatability	4 mg
Repeatability in fine range	–
Repeatability (at 5% load)	–
Repeatability ABA (5 cycles at nominal load)	2 mg
Repeatability ABA (5 cycles at 5% load)	2 mg
Linearity deviation	11.4 mg
Eccentricity deviation (at test load)	–
Sensitivity offset (at nominal load) ▲	140 mg
Minimum weight (USP, tolerance = 0.10%) ▼	8 g
Minimum weight (tolerance = 1%) ▼	0.8 g
Settling time	8 s
Dimensions and other specifications	
Balance dimensions (W × D × H)	360 × 280 × 185 mm
Weighing pan dimensions (W × D)	–
Weighing pan diameter	220 mm
Usable height of draft shield	–
Balance weight	13.7 kg
Weights for routine testing	
Weights (OIML class)	20 kg (F2) / 1000 g (F2)
Weights (ASTM class)	20 kg (ASTM 4) / 1000 g (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.4.2 Readability 5 mg

	XPR32003LD5C	XPR64003LD5C
Limit values		
Capacity	32.1 kg	64.1 kg
Nominal load	32 kg	64 kg
Readability	5 mg	5 mg
Capacity of fine range	–	–
Readability in fine range	–	–
Repeatability	15 mg	15 mg
Repeatability in fine range	–	–
Repeatability ABA (5 cycles at nominal load)	8 mg	8 mg
Repeatability ABA (5 cycles at 5% load)	5 mg	5 mg
Linearity deviation	20 mg	50 mg
Eccentricity deviation (at test load)	0.25 g (10 kg)	0.5 g (20 kg)
Eccentricity deviation with LEVEL-MATIC or hanging pan (at test load)	0 g (10 kg)	0 g (20 kg)
Sensitivity offset (at nominal load) ▲	0.32 g	1.6 g
Sensitivity temperature drift	0.0003%/°C	0.0005%/°C
Typical values		
Repeatability	6.5 mg	10 mg
Repeatability in fine range	–	–
Repeatability (at 5% load)	–	–
Repeatability ABA (5 cycles at nominal load)	5 mg	7 mg
Repeatability ABA (5 cycles at 5% load)	5 mg	5 mg
Linearity deviation	18 mg	28 mg
Eccentricity deviation (at test load)	160 mg (10 kg)	–
Sensitivity offset (at nominal load) ▲	140 mg	650 mg
Minimum weight (USP, tolerance = 0.10%) ▼	13 g	20 g
Minimum weight (tolerance = 1%) ▼	1.3 g	2 g
Settling time	8 s	8 s
Dimensions and other specifications		
Balance dimensions (W × D × H)	362 × 282 × 123 mm	360 × 280 × 185 mm
Weighing pan dimensions (W × D)	362 × 282 mm	–
Weighing pan diameter	–	220 mm
Usable height of draft shield	–	–
Balance weight	12.1 kg	13.7 kg
Weights for routine testing		
Weights (OIML class)	20 kg (F2) / 1000 g (F2)	50 kg (F2) / 2 kg (F2)
Weights (ASTM class)	20 kg (ASTM 4) / 1000 g (ASTM 4)	50 kg (ASTM 4) / 2 kg (ASTM 4)

▲ after adjustment with internal weight

▼ determined at 5% load, k = 2

9.3.4.3 Readability 10 mg

	XPR64002LC	XPR64002LC-T
Limit values		
Capacity	64.1 kg	64.1 kg
Nominal load	64 kg	64 kg
Readability	0.01 g	10 mg
Capacity of fine range	–	–
Readability in fine range	–	–
Repeatability	35 mg	35 mg
Repeatability in fine range	–	–
Repeatability ABA (5 cycles at nominal load)	25 mg	25 mg
Repeatability ABA (5 cycles at 5% load)	10 mg	10 mg
Linearity deviation	50 mg	50 mg
Eccentricity deviation (at test load)	0.4 g (20 kg)	0.5 g (20 kg)
Eccentricity deviation with LEVEL-MATIC or hanging pan (at test load)	0 g (20 kg)	0 g (20 kg)
Sensitivity offset (at nominal load) ▲	1.6 g	1.6 g
Sensitivity temperature drift	0.0003%/°C	0.0003%/°C
Typical values		
Repeatability	18 mg	18 mg
Repeatability in fine range	–	–
Repeatability (at 5% load)	–	–
Repeatability ABA (5 cycles at nominal load)	20 mg	20 mg
Repeatability ABA (5 cycles at 5% load)	10 mg	10 mg
Linearity deviation	28 mg	28 mg
Eccentricity deviation (at test load)	240 mg (20 kg)	240 mg (20 kg)
Sensitivity offset (at nominal load) ▲	650 mg	650 mg
Minimum weight (USP, tolerance = 0.10%) ▼	36 g	36 g
Minimum weight (tolerance = 1%) ▼	3.6 g	3.6 g
Settling time	8 s	8 s
Dimensions and other specifications		
Balance dimensions (W × D × H)	362 × 282 × 123 mm	362 × 282 × 123 mm
Weighing pan dimensions (W × D)	362 × 282 mm	362 × 282 mm
Weighing pan diameter	–	–
Usable height of draft shield	–	–
Balance weight	12.1 kg	12.1 kg
Weights for routine testing		
Weights (OIML class)	50 kg (F2) / 2 kg (F2)	50 kg (F2) / 2 kg (F2)
Weights (ASTM class)	50 kg (ASTM 4) / 2 kg (ASTM 4)	50 kg (ASTM 4) / 2 kg (ASTM 4)

▲ after adjustment with internal weight

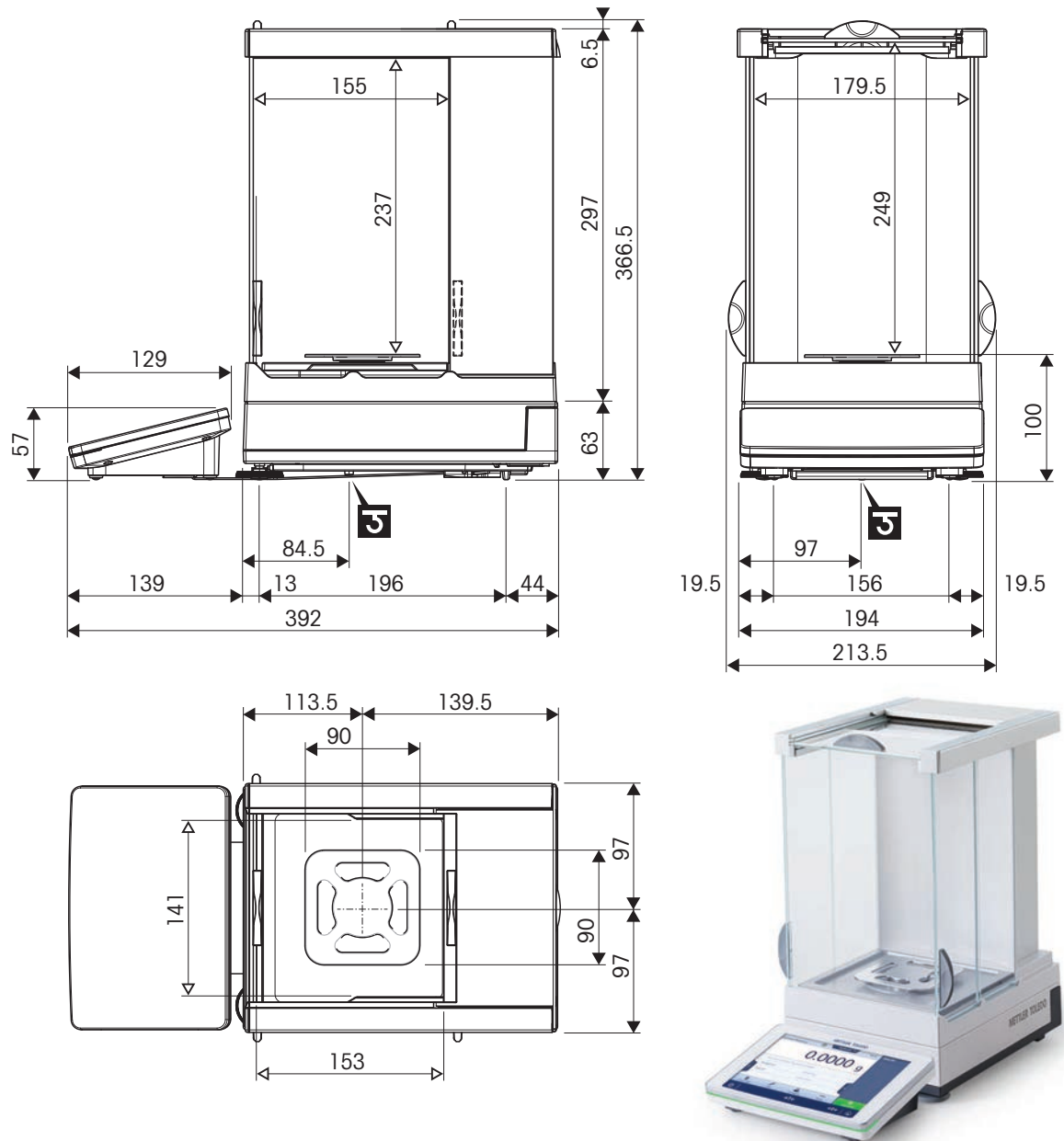
▼ determined at 5% load, k = 2

9.4 Dimensions

9.4.1 Balances with S weighing platform

9.4.1.1 Readability 0.1 mg, with Pro draft shield and SmartPan Pro weighing pan

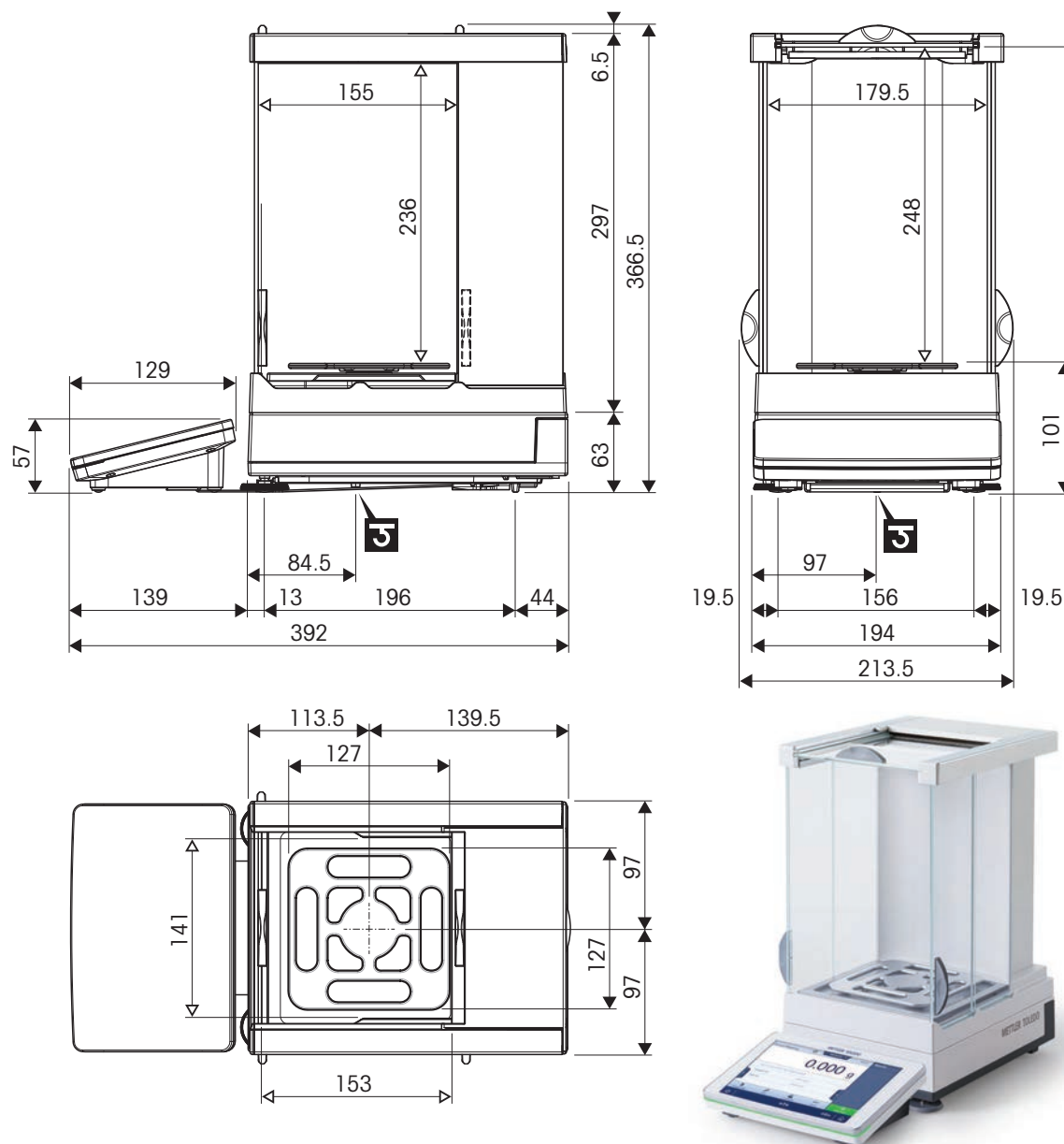
Models: XRP204S, XPR404S, XPR504S



↔	Outer dimensions [mm]
↔	Clear dimensions [mm]
⌋	Position of the weighing hook axle

9.4.1.2 Readability 0.5 mg / 1 mg, with Pro draft shield and SmartPan Pro weighing pan

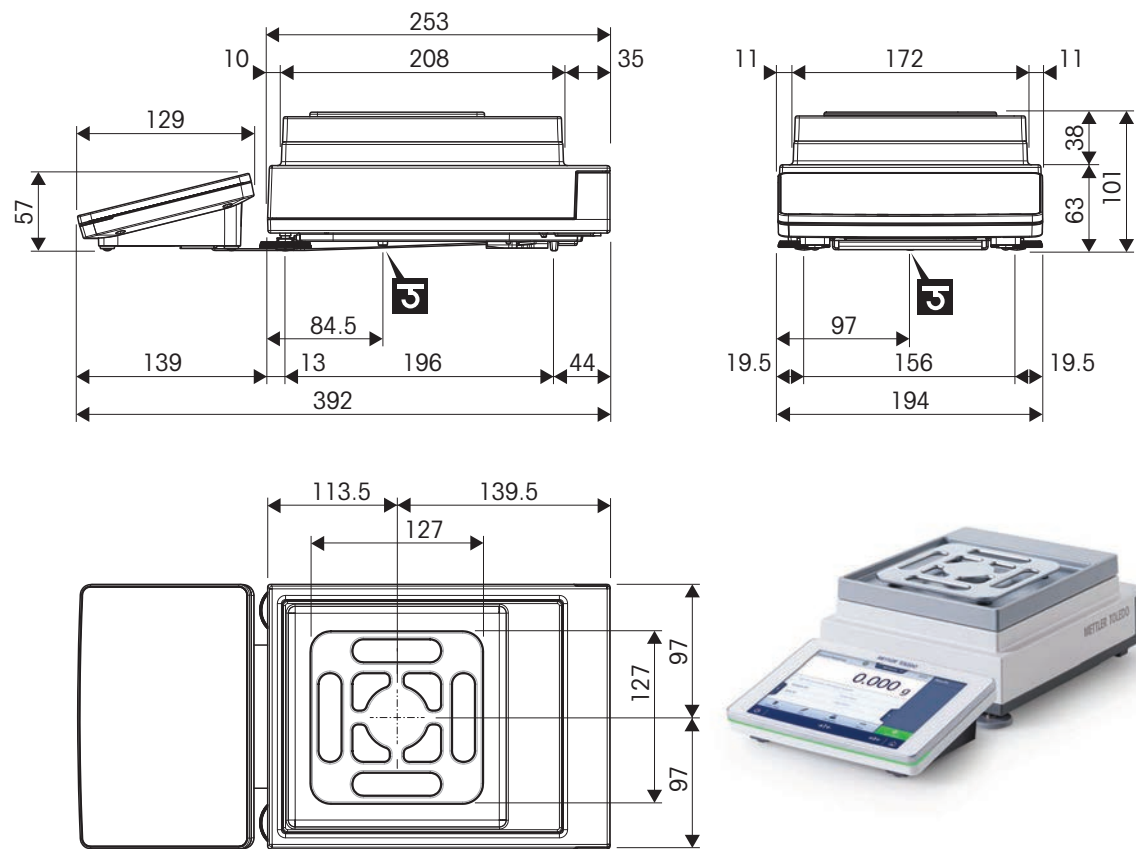
Models: XPR3004SD5, XPR303S, XPR603S, XPR1203S, XPR2003S, XPR3003S, XPR5003S



	Outer dimensions [mm]
	Clear dimensions [mm]
	Position of the weighing hook axle

9.4.1.3 Readability 1 mg, with SmartPan Pro weighing pan

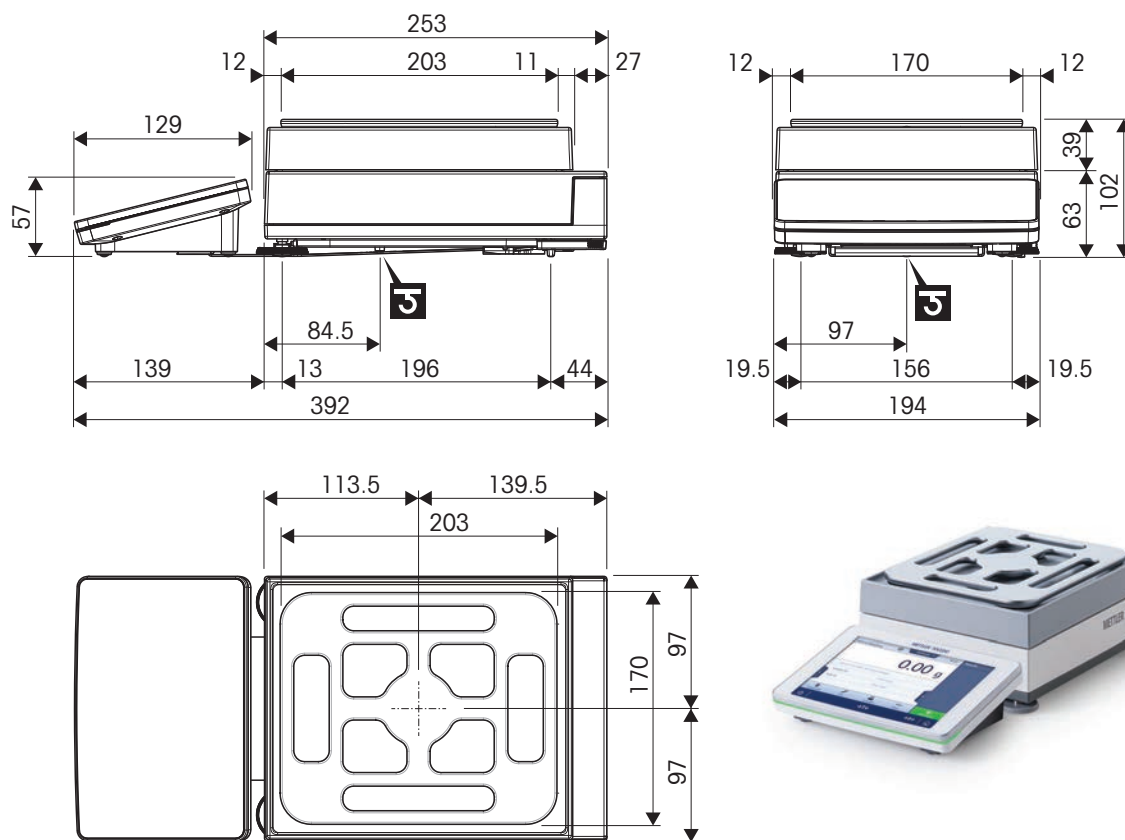
Models: XPR303SN, XPR1203SN, XPR603SN



	Outer dimensions [mm]
	Position of the weighing hook axle

9.4.1.4 Readability 5 mg / 10 mg, with SmartPan Pro weighing pan

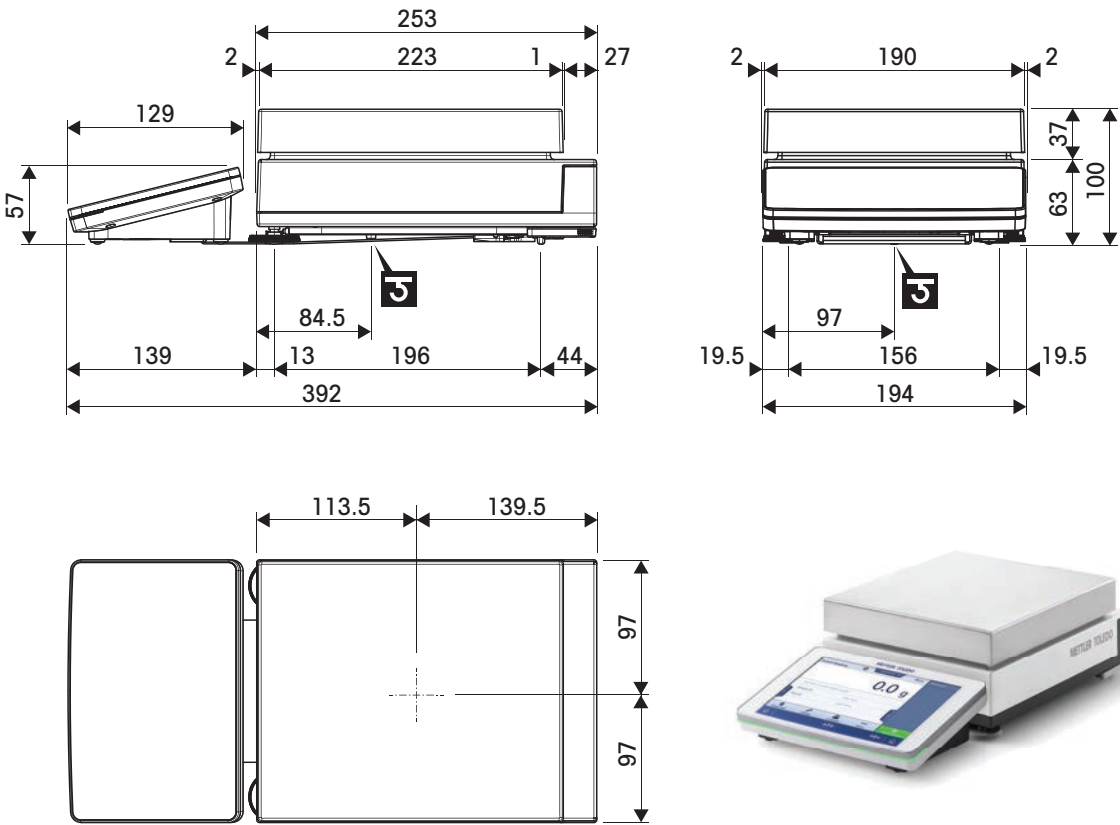
Models: XPR6003SD5, XPR12003SD5, XPR1202S, XPR2002S, XPR4002S, XPR6002S, XPR6002SDR, XPR8002S, XPR12002S



↔	Outer dimensions [mm]
	Position of the weighing hook axle

9.4.1.5 Readability 100 mg

Models: XPR4001S, XPR8001S, XPR12001S

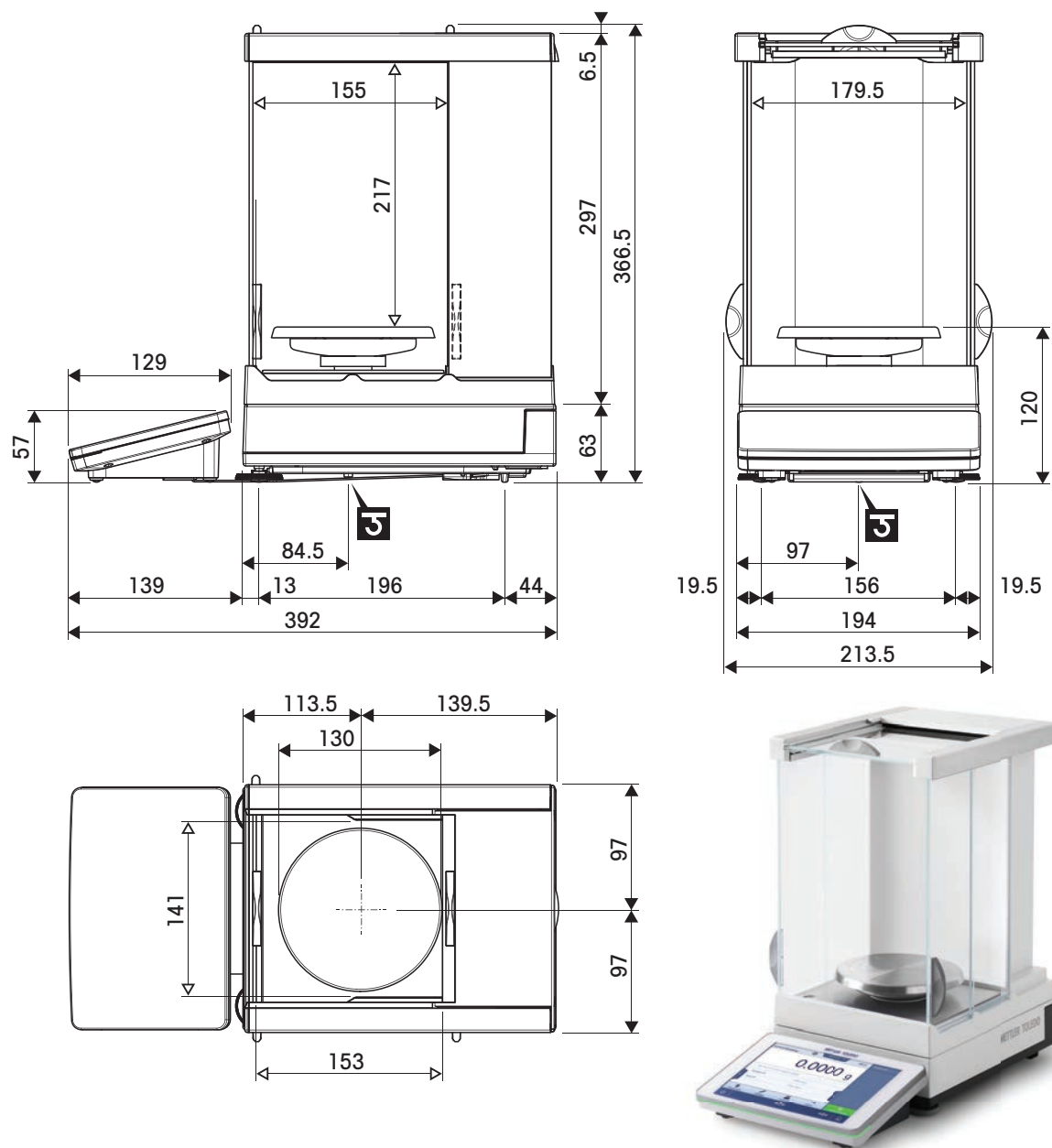


	Outer dimensions [mm]
	Position of the weighing hook axle

9.4.2 Comparators with S weighing platform

9.4.2.1 Readability 0.1 mg, with Pro draft shield and LevelMatic weighing pan

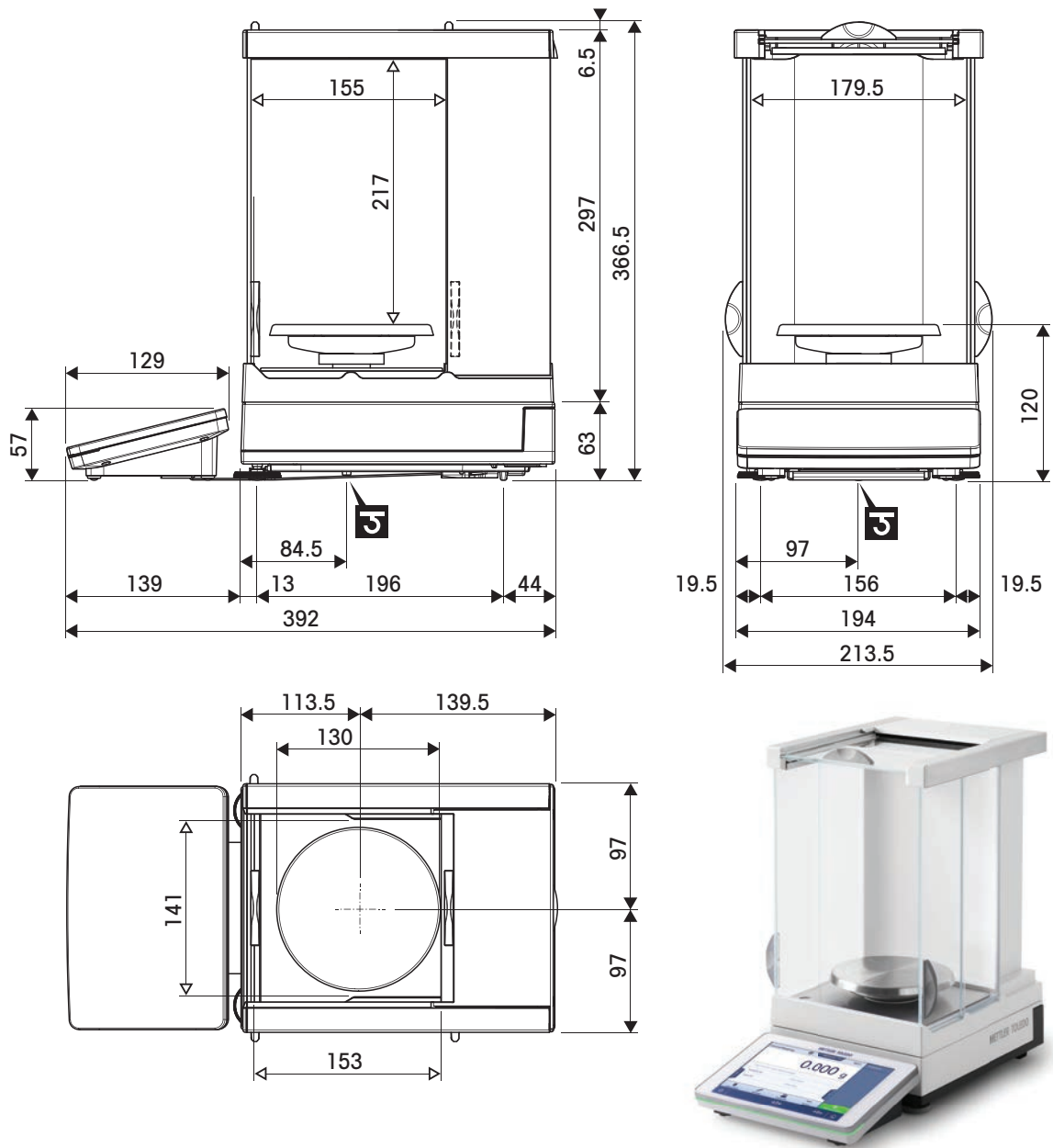
Models: XPR2004SC, XPR5004SC



	Outer dimensions [mm]
	Clear dimensions [mm]
	Position of the weighing hook axle

9.4.2.2 Readability 1 mg, with Pro draft shield and LevelMatic weighing pan

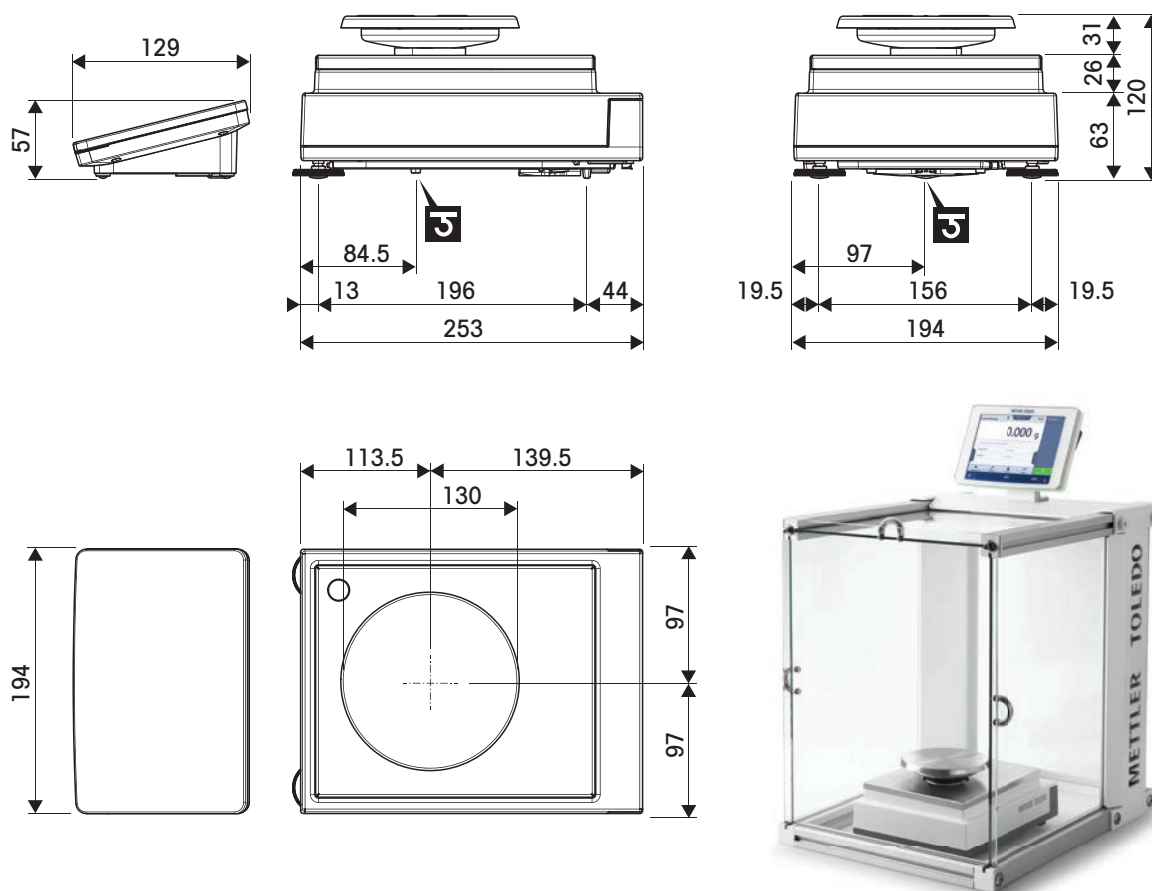
Models: XPR5003SC



↔	Outer dimensions [mm]
◁ ▷	Clear dimensions [mm]
Ⓜ	Position of the weighing hook axle

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

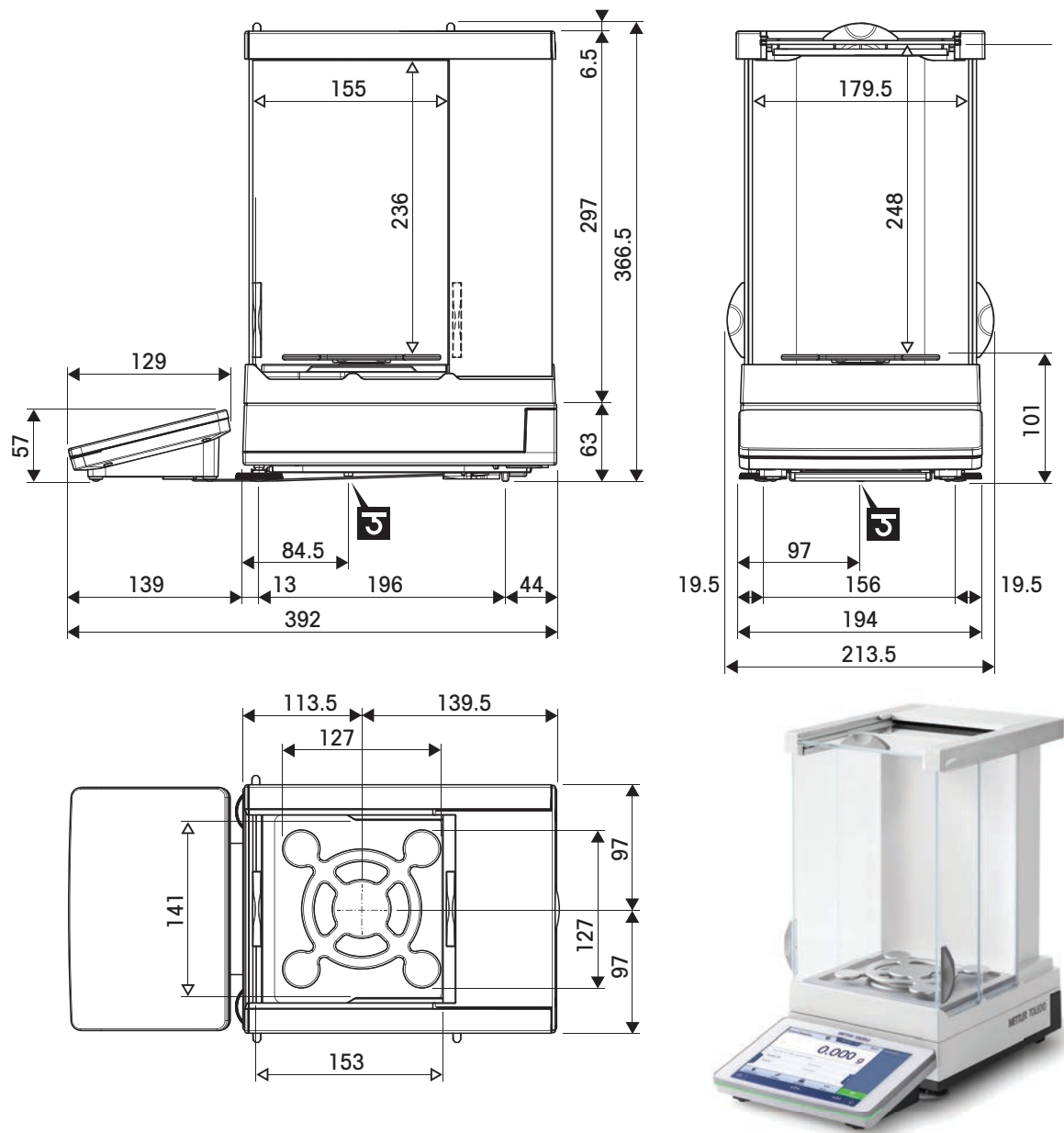
Models: XPR10003SC



	Outer dimensions [mm]
	Clear dimensions [mm]
	Position of the weighing hook axle

9.4.2.4 Readability 1 mg, with Pro draft shield

Models: XPR2003SC

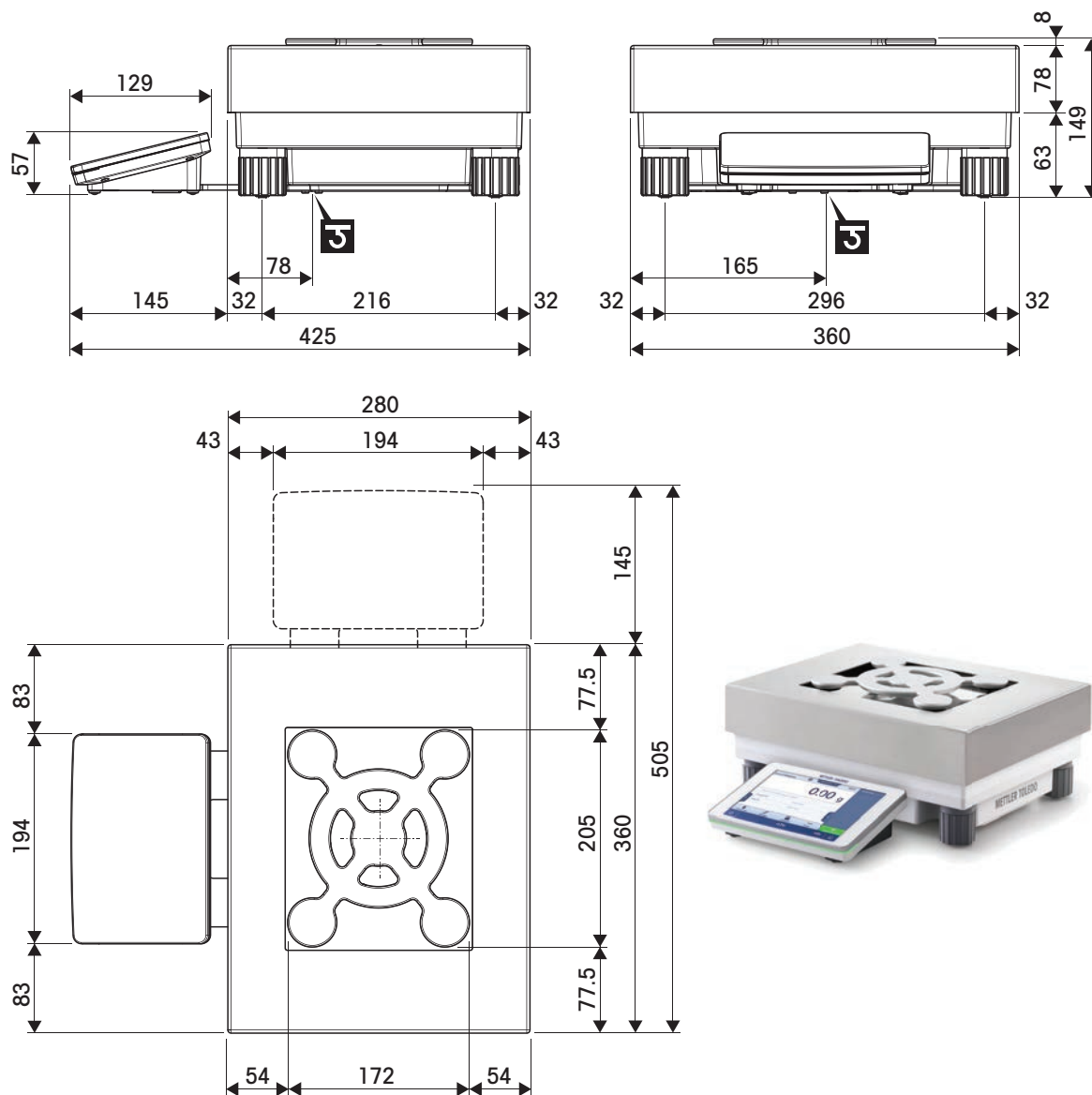


	Outer dimensions [mm]
	Clear dimensions [mm]
	Position of the weighing hook axle

9.4.3 Balances with L weighing platform

9.4.3.1 Readability 10 mg, with SmartPan weighing pan

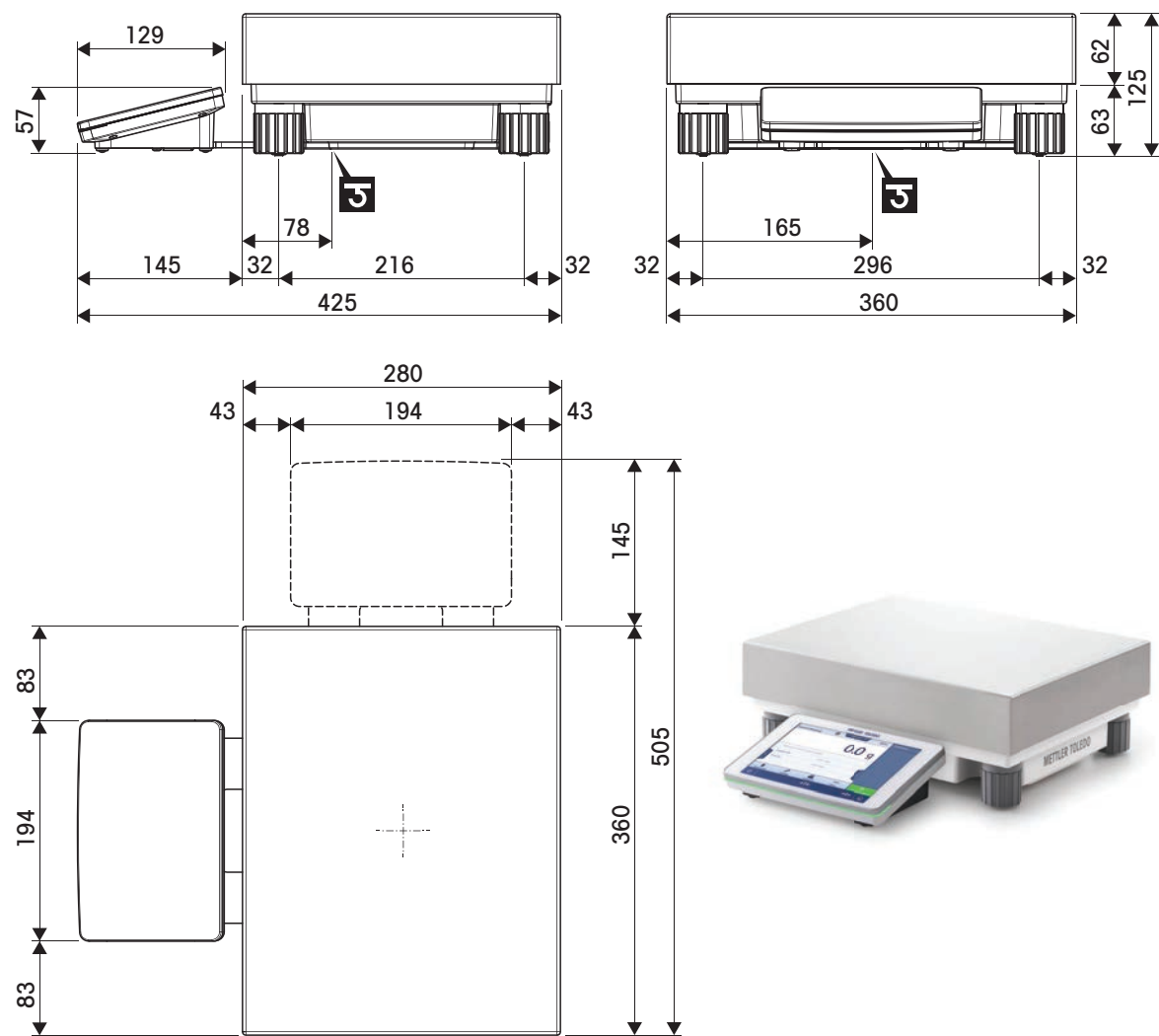
Models: XPR15002L, XPR20002LDR



	Outer dimensions [mm]
	Position of the weighing hook axle

9.4.3.2 Readability 100 mg / 1 g

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

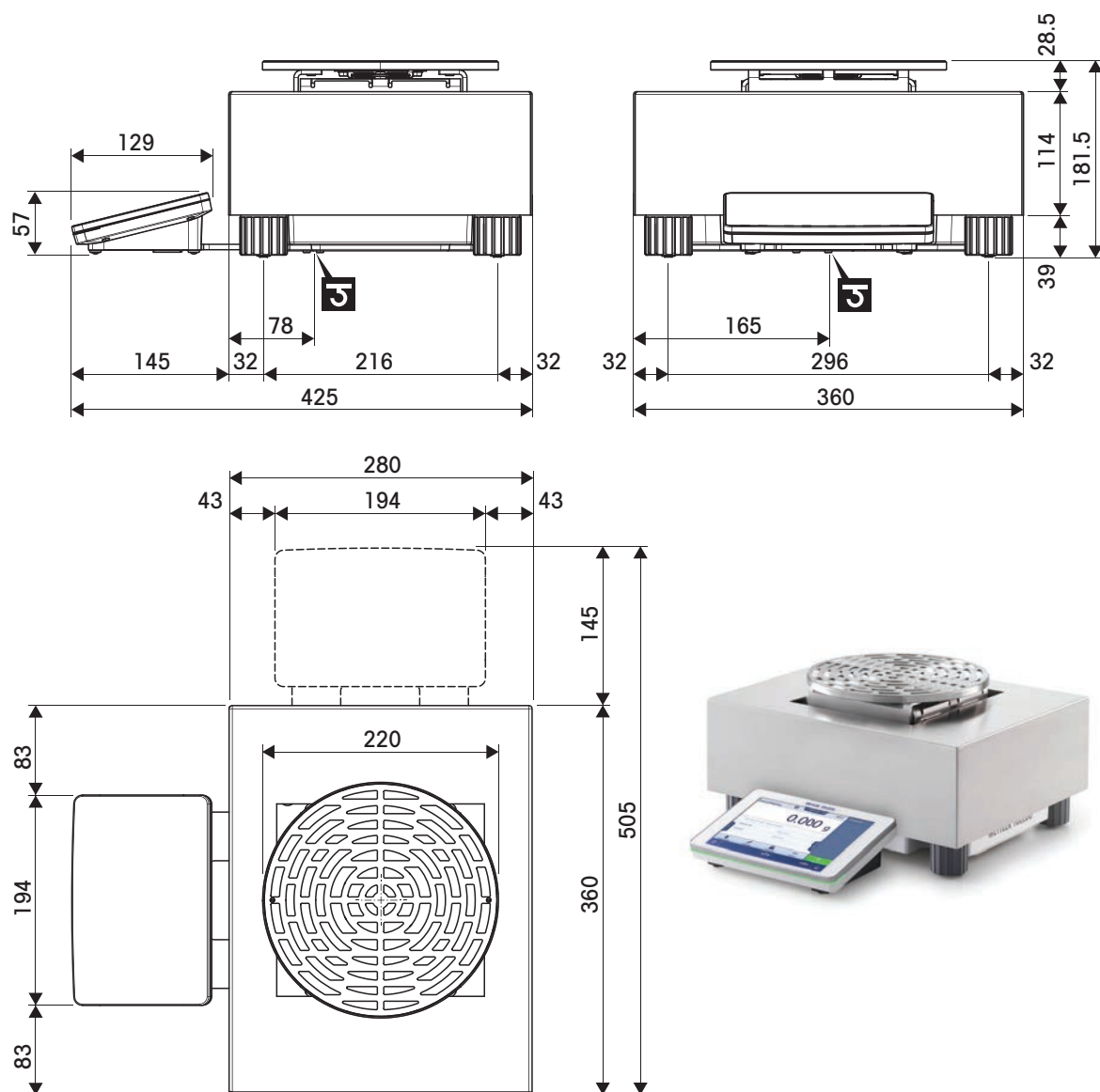


	Outer dimensions [mm]
	Position of the weighing hook axle

9.4.4 Comparators with L weighing platform

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

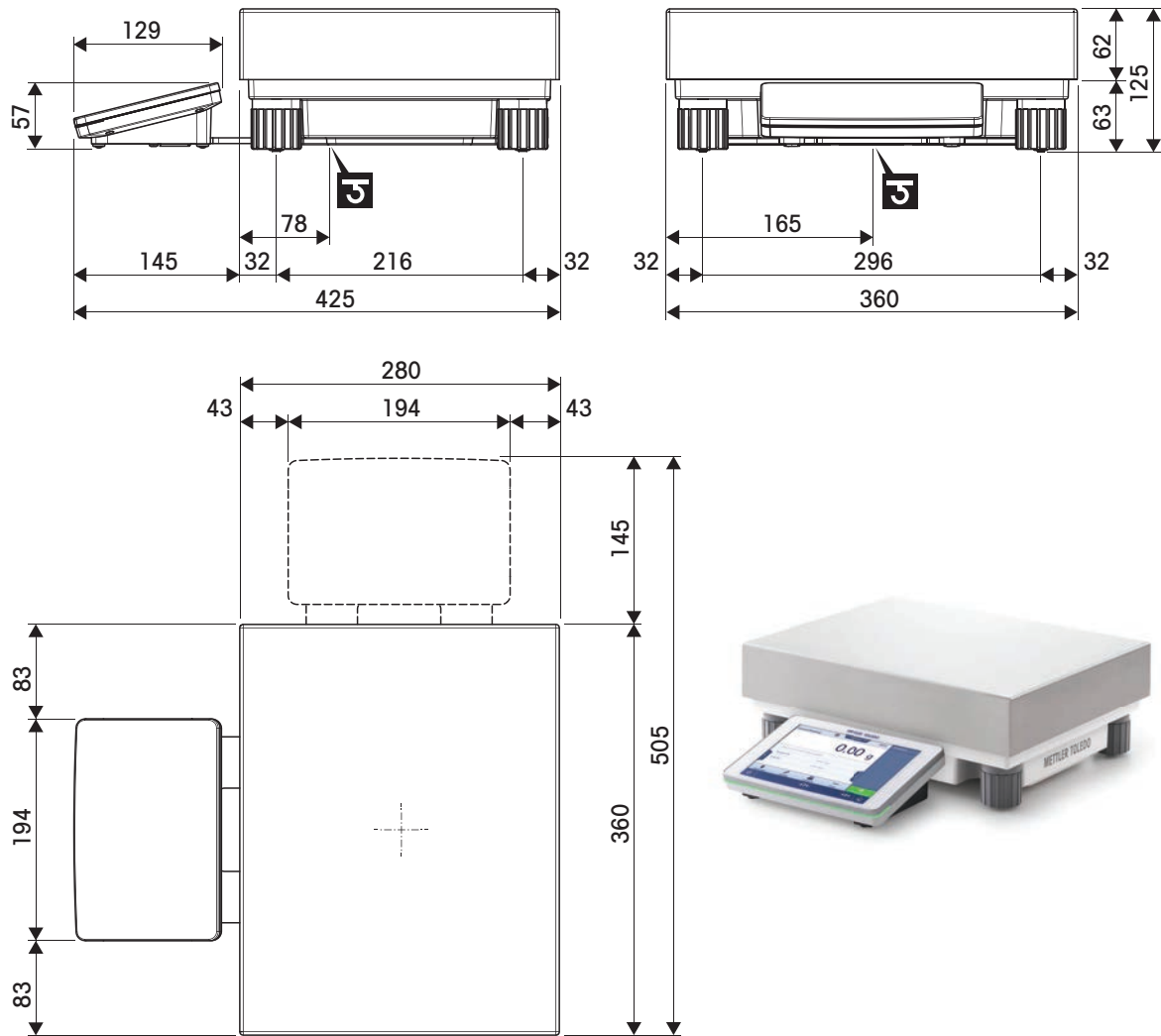
Models: XPR26003LC, XPR64003LD5C



	Outer dimensions [mm]
	Position of the weighing hook axle

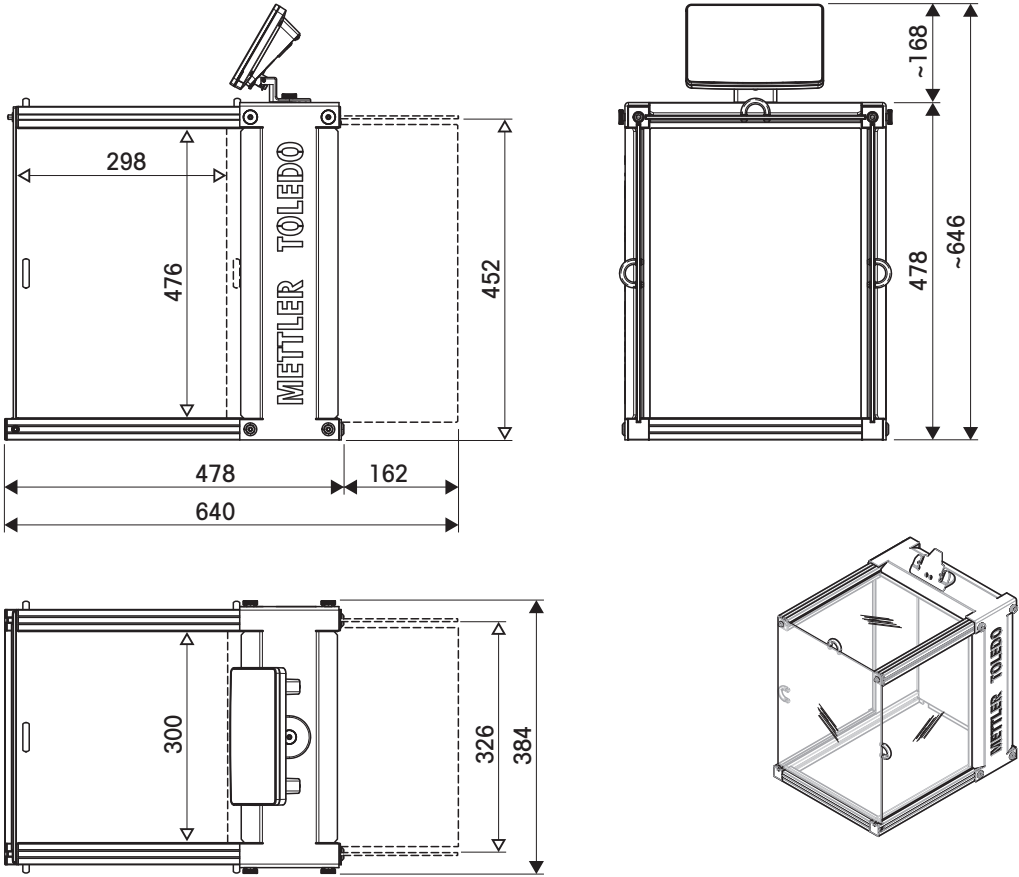
9.4.4.2 Readability 5 mg / 10 mg

Models: XPR32003LD5C, XPR64002LC



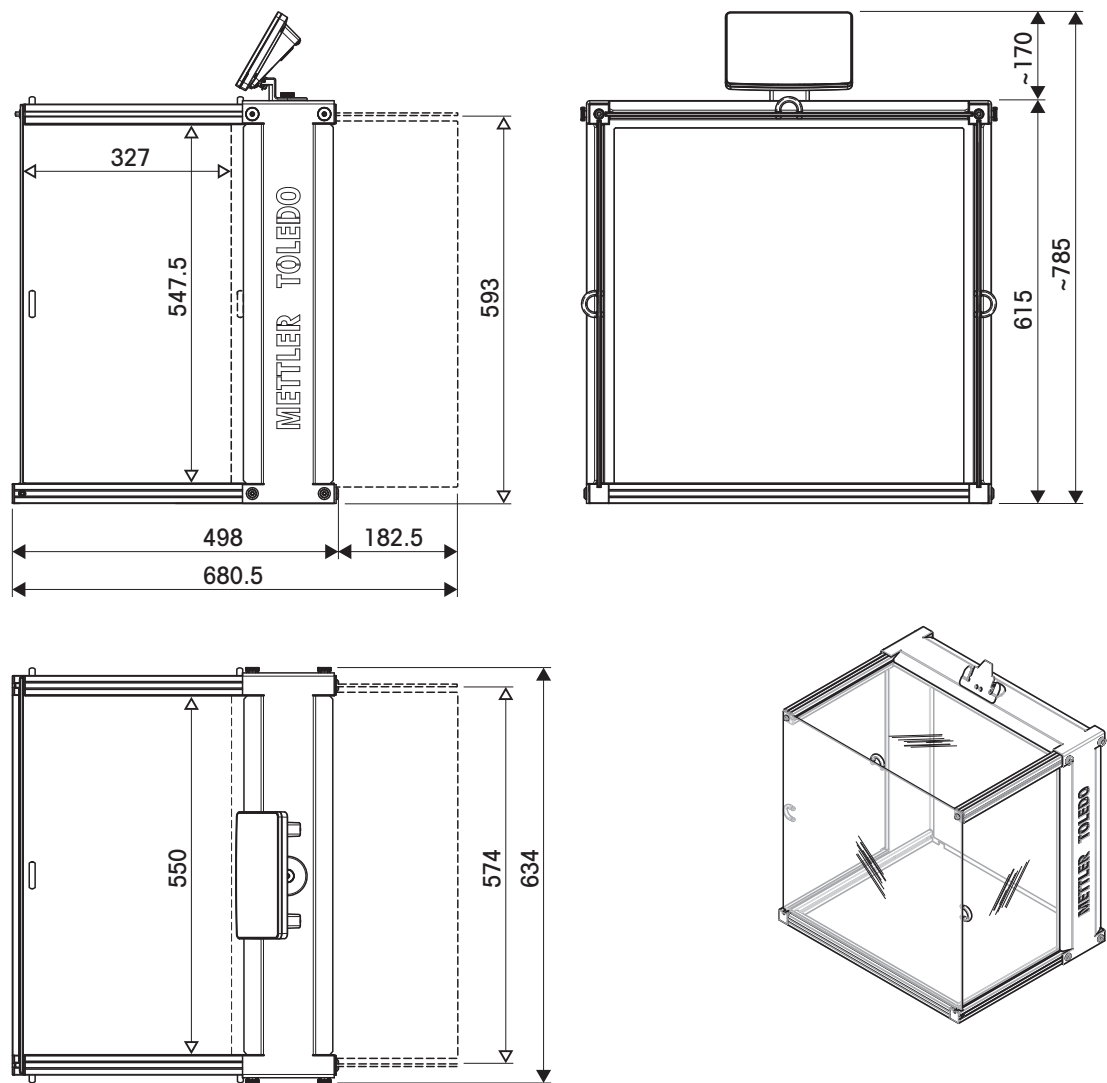
	Outer dimensions [mm]
	Position of the weighing hook axle

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



	Outer dimensions [mm]
	Clear dimensions [mm]
	Position of the weighing hook axle

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



	Outer dimensions [mm]
	Clear dimensions [mm]
	Position of the weighing hook axle

10 Disposal

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

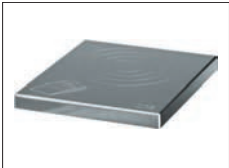
Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. If you have any questions, please contact the responsible authority or the distributor from which you purchased this device. Should this device be passed on to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



11 Accessories and Spare Parts

11.1 Accessories

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

	Description	Order no.
Weighing pans		
	Dynamic weighing pan for 100 mg and 10 mg models, with 4 liter bowl and contact mat, S platform	11132657
	Bullion Weighing Kit to load or unload heavy items, only for models with L weighing platform	30300944
	MPS (Magnetic Protection Shield) weighing pan for 0.1 g models 190 × 223 mm, "S" platform	11132625
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 Usable 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 × 470 mm × 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

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-electrode (11107764)

11107766



Compact ionizer with stand (USB)

30499859



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

30496446

Filling-process control



LV12 automatic feeder

30374389



LV12 Pro draft shield door for 0.1 mg and 1 mg models with S weighing platform

11132711

Density determination



Density kit

30300933



Sinker 10 mL

210260



Calibrated Sinker 10mL

210672



Calibrated Thermometer

11132685

Printers



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

30237290

Paper roll (length: 20 m), set of 5 pcs

00072456

Paper roll (length: 13 m), self-adhesive, set of 3 pcs

11600388

Ribbon cartridge, black, set of 2 pcs

00065975



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

30094673

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

30094723

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

30094724



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

30094674

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

30094723

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

30094724

Paper roll, white, self-adhesive labels (550 labels), set of 6 pcs

30094725

Dimension of the label 56×18 mm



Citizen CLS631 label printer

11141820

RFID readers / writers / cards



EasyScan USB

30416173

Reads and writes RFID tags.



Smart Tag

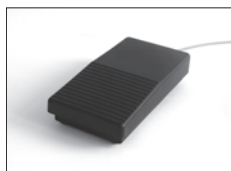
Set of 50 pieces

30101517

Set of 200 pieces

30101518

Hands-free accessories



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

30312558



ErgoSens, optical sensor for remote operation (USB connection)

30300915

Barcode readers



Corded USB barcode reader

30417466

Anti-theft devices



Anti-theft cable with lock

11600361

Cables for RS232C interfaces



USB-RS232 cable (to connect the instrument via RS232C to a USB port)

64088427



USB-RS232 cable with integrated null modem to connect peripherals and computers via RS232C to an XPR/XSR balance

30576241

Wireless interfaces



Bluetooth RS232C serial adapter ADP-BT-S

30086494

For wireless connection between:

- instrument and computer (depending on the instrument model)
- printer and instrument



Bluetooth USB adapter for wireless connection to P-5x printer (additional Bluetooth RS232 serial adapter 30086494 required)

30416089

Software



LabX Balance Express

11153120

Stand-alone system, includes one balance license.



LabX Balance Server

11153121

Client server system, includes one balance license.



LabX 1 Balance instrument license

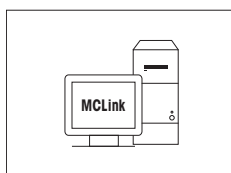
11153220

Single additional instrument license for Express or Server edition.



SQC license

30539260



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

Adjustment weights



OIML / ASTM Weights (with calibration certificate)

► www.mt.com/weights

Various



EasyHub USB

30468768



Terminal cable, extended, length: 4.5 m

30300920



USB (A - B) cable for connection to PC (length: 1 m)

12310716



Transport case for 5 mg, 10 mg and 100 mg models,
S platform

30113497



Hook for Platform L

11132565



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

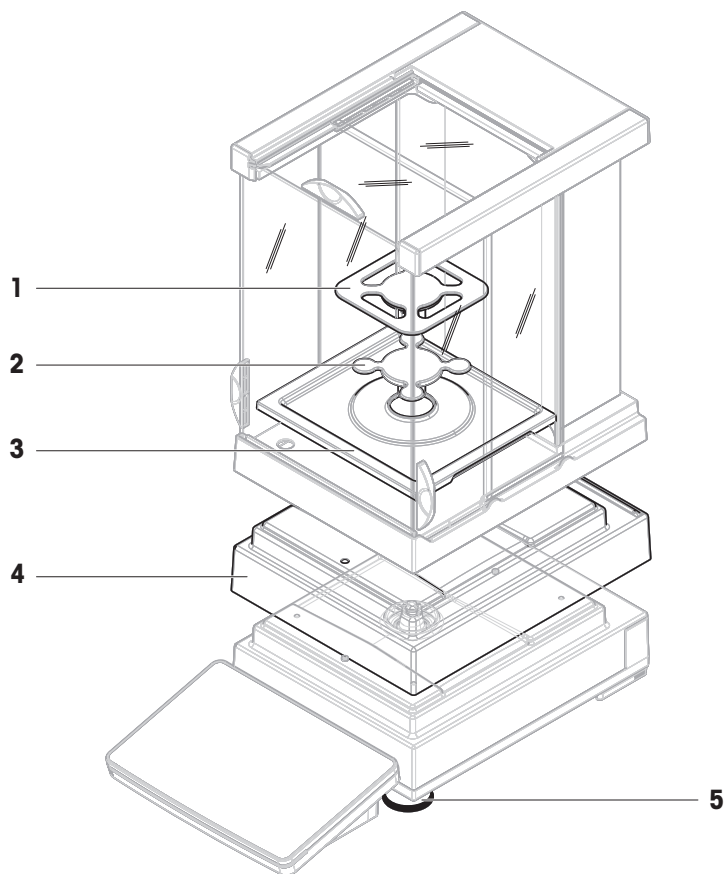
30061260

11.2 Spare parts

Spare parts are parts that are delivered with the original instrument but that can be replaced, if needed, without the help of a service technician.

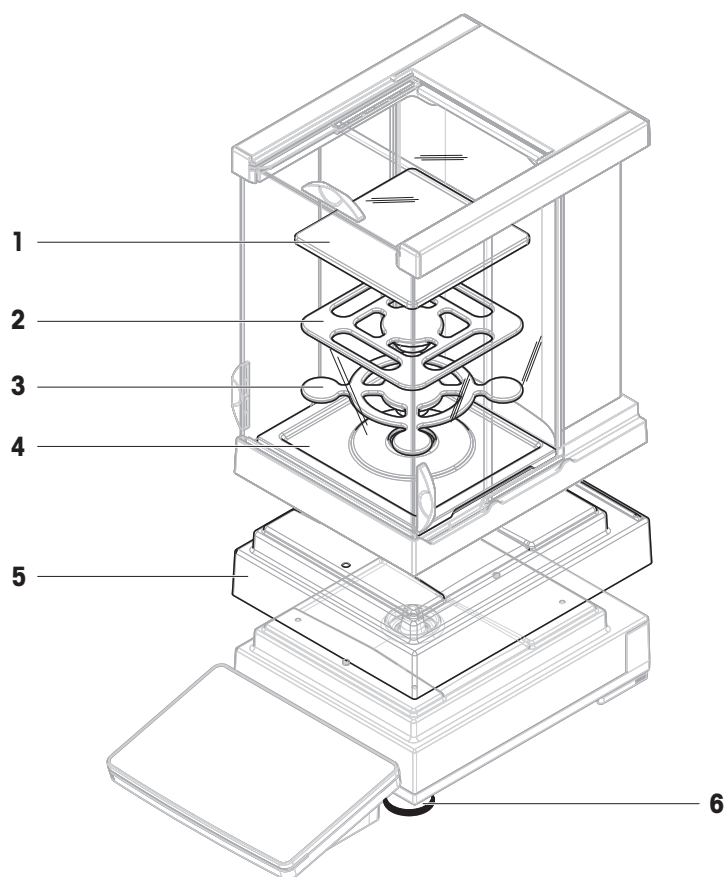
11.2.1 Balances S weighing platform

11.2.1.1 Balance S platform, readability 0.1 mg, SmartPan Pro, Pro draft shield



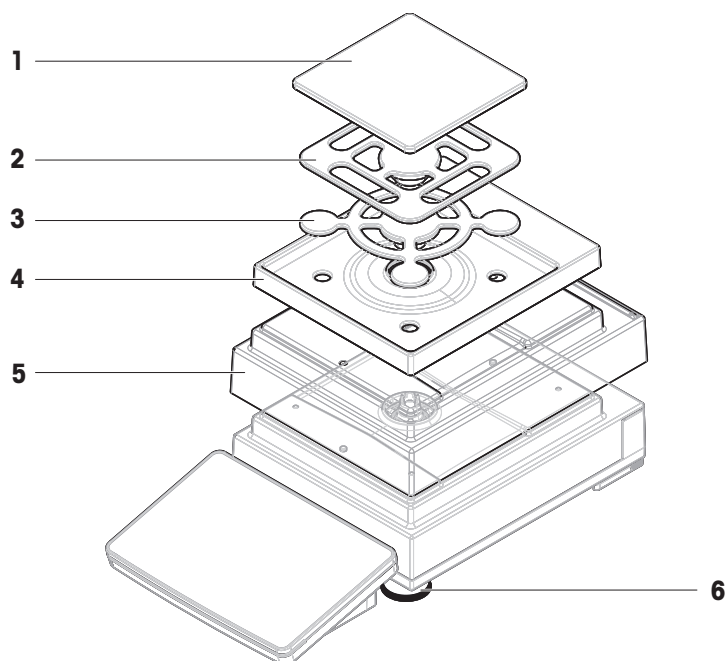
	Order no.	Designation	Remarks
1	30731725	SmartPan Pro weighing pan	90 × 90 mm
2	30416103	SmartPan weighing pan	68 × 68 mm
3	30416102	Drip tray	For models with draft shield
4	30300967	Protective cover, weighing platform	–
5	30072531	Leveling foot	Including: 1 pcs

11.2.1.2 Balance S platform, readability 0.5 mg / 1 mg, SmartPan Pro, Pro draft shield



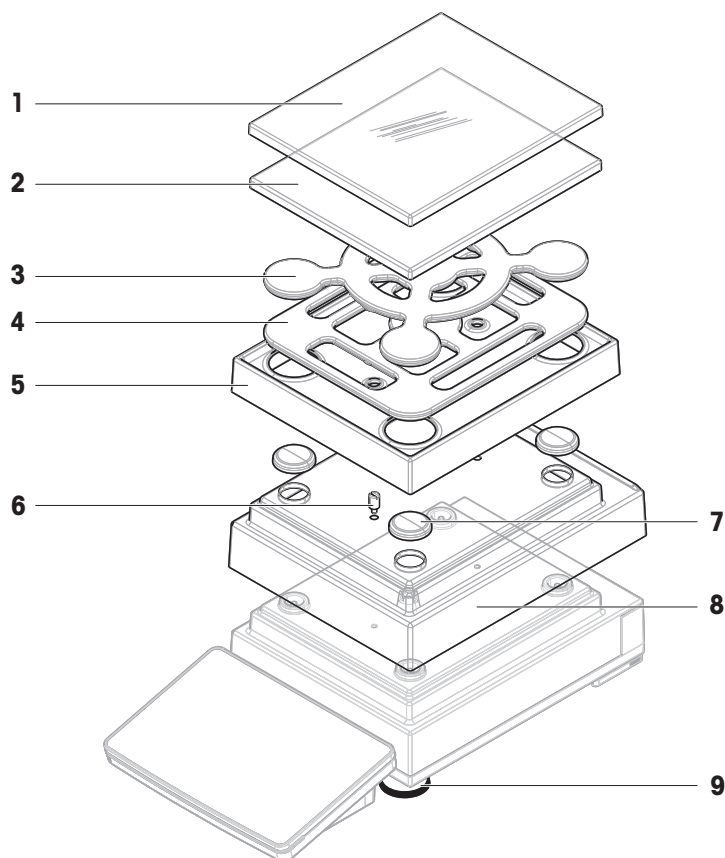
	Order no.	Designation	Remarks
1	30215433	Weighing pan	128 × 128 mm
2	30731726	SmartPan Pro weighing pan	127 × 127 mm
3	30215431	SmartPan weighing pan	127 × 127 mm
4	30416102	Drip tray	For models with draft shield
5	30300967	Protective cover, weighing platform	—
6	30072531	Leveling foot	Including: 1 pcs

11.2.1.3 Balance S platform, readability 1 mg, SmartPan Pro



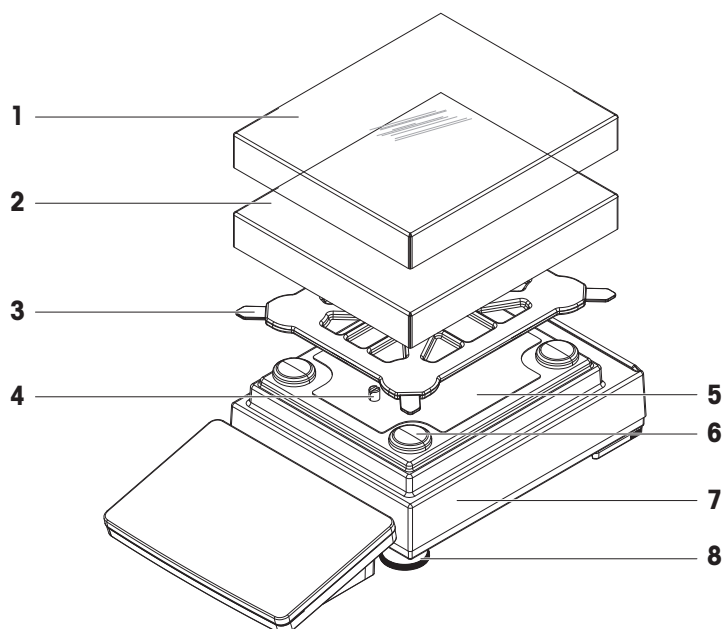
	Order no.	Designation	Remarks
1	30215433	Weighing pan	128 × 128 mm
2	30731726	SmartPan Pro weighing pan	127 × 127 mm
3	30215431	SmartPan weighing pan	127 × 127 mm
4	30416108	Drip tray	For models without draft shield
5	30300967	Protective cover, weighing platform	–
6	30072531	Leveling foot	Including: 1 pcs

11.2.1.4 Balance S platform, readability 5 mg / 10 mg, SmartPan Pro



	Order no.	Designation	Remarks
1	30106207	Protective cover, weighing pan	172 × 205 mm
2	30215056	Weighing pan	172 × 205 mm
3	30215057	SmartPan weighing pan	170 × 203 mm
4	30731727	SmartPan Pro weighing pan	170 × 203 mm
5	30113501	Drip tray	For models without draft shield
6	30215373	Stop screw	Including: 2 pcs
7	11131029	Cap, pan support	Including: 1 pcs
8	30300966	Protective cover, weighing platform	—
9	30072531	Leveling foot	Including: 1 pcs

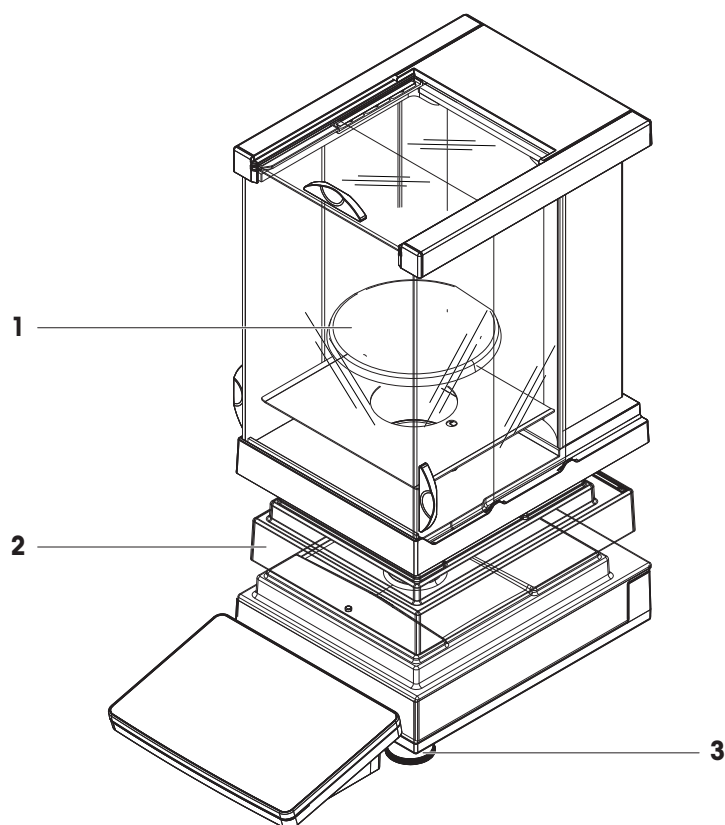
11.2.1.5 Balance S platform, readability 100 mg



	Order no.	Designation	Remarks
1	30106204	Protective cover, weighing pan	190 × 223 mm
2	11131031	Weighing pan	190 × 223 mm
3	11131037	Pan support	–
4	11131073	Stop screw	Including: 1 pcs
5	11131067	Fastening plate	–
6	11131029	Cap, pan support	Including: 1 pcs
7	30300966	Protective cover, weighing platform	–
8	30072531	Leveling foot	Including: 1 pcs

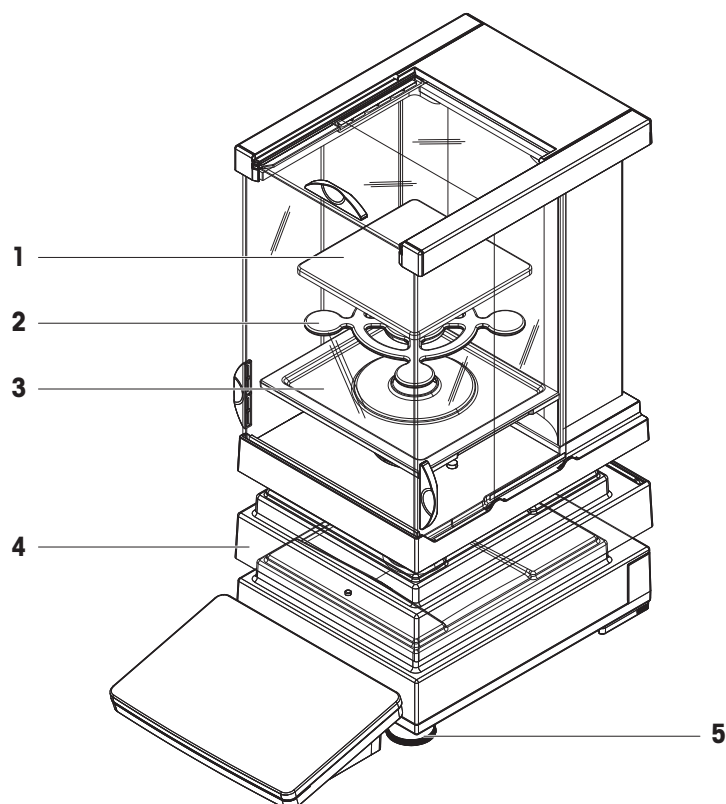
11.2.2 Comparators S weighing platform

11.2.2.1 Comparator S platform, readability 0.1 mg / 1 mg, LevelMatic, Pro draft shield or W12 draft shield



	Order no.	Designation	Remarks
1	11131123	LevelMatic weighing pan	Including: weighing pan, weighing pan holder
2	30300967	Protective cover, weighing platform	—
3	30072531	Leveling foot	Including: 1 pcs

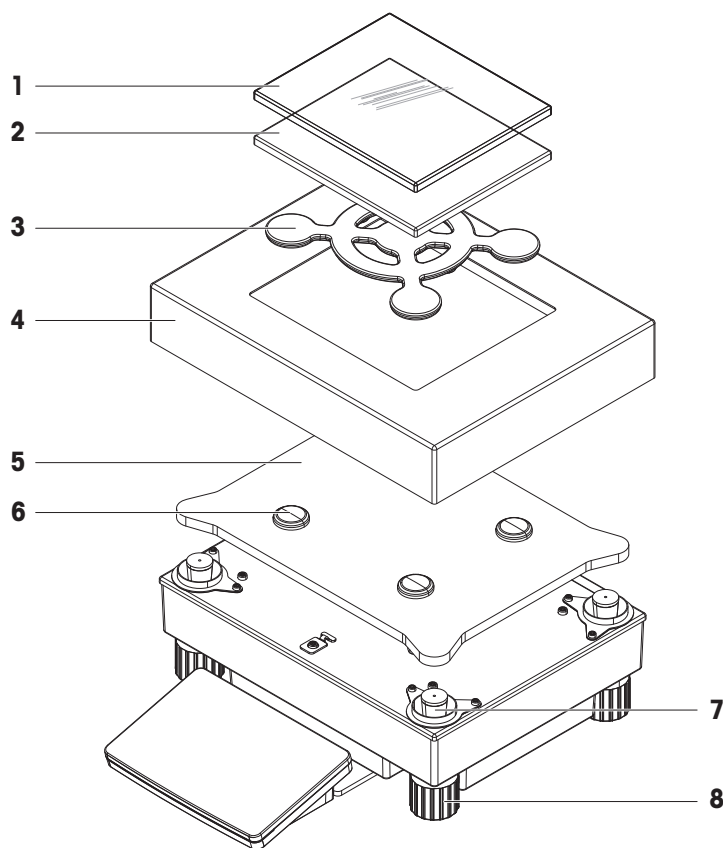
11.2.2.2 Comparator S platform, readability 1 mg, SmartPan, Pro draft shield



	Order no.	Designation	Remarks
1	30215433	Weighing pan	128 × 128 mm
2	30215431	SmartPan weighing pan	127 × 127 mm
3	30416102	Drip tray	For models with draft shield
4	30300967	Protective cover, weighing platform	–
5	30072531	Leveling foot	Including: 1 pcs

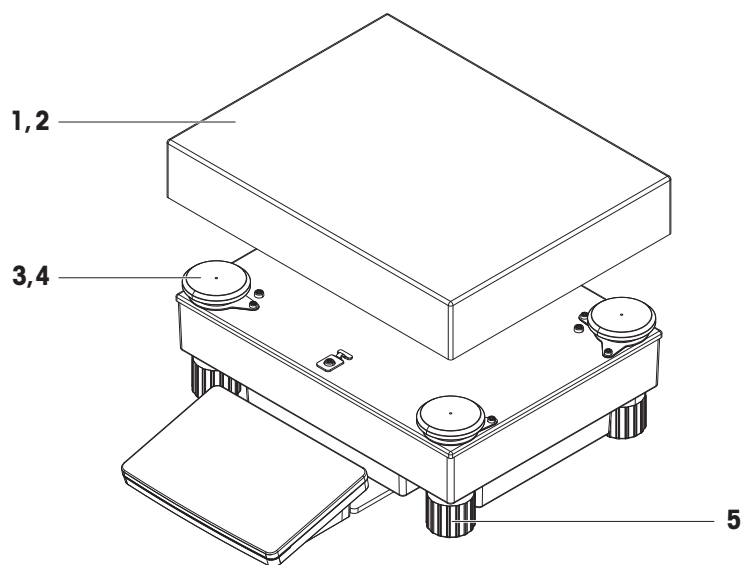
11.2.3 Balances L weighing platform

11.2.3.1 Balance L platform, readability 10 mg, SmartPan



	Order no.	Designation	Remarks
1	30106207	Protective cover, weighing pan	172 × 205 mm
2	30215056	Weighing pan	172 × 205 mm
3	30215057	SmartPan weighing pan	170 × 203 mm
4	30215365	Draft shield element	—
5	30215366	Adapter plate	—
6	11131029	Cap, pan support	Including: 1 pcs
7	30416106	Pan support	Including: 4 pcs
8	11133102	Leveling foot	Including: 1 pcs

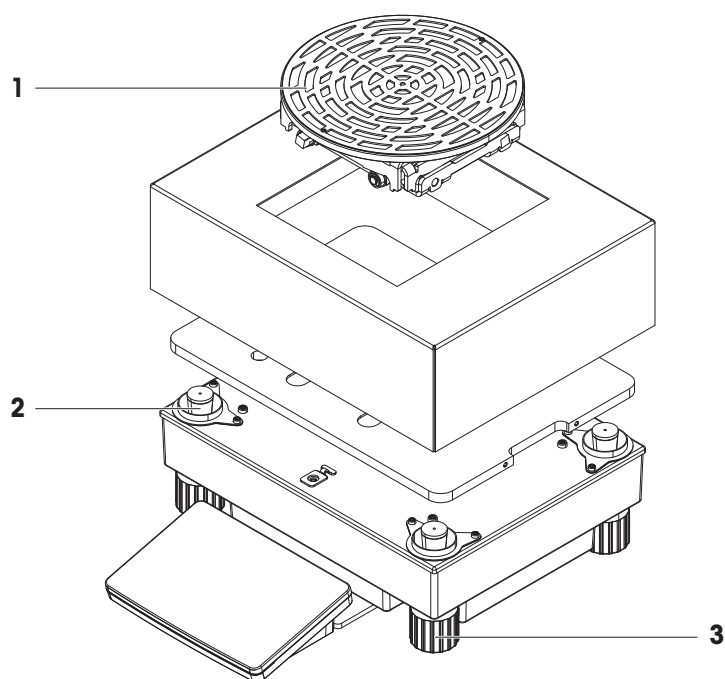
11.2.3.2 Balance L platform, readability 100 mg / 1 g



	Order no.	Designation	Remarks
1	239105	Weighing pan (≤ 32 kg)	280 × 360 mm
2	11102124	Weighing pan (≤ 64 kg)	280 × 360 mm
3	30416105	Cap, pan support (≤ 32 kg)	Including: 4 pcs
4	30416107	Cap, pan support (≤ 64 kg)	Including: 4 pcs
5	11133102	Leveling foot	Including: 1 pcs

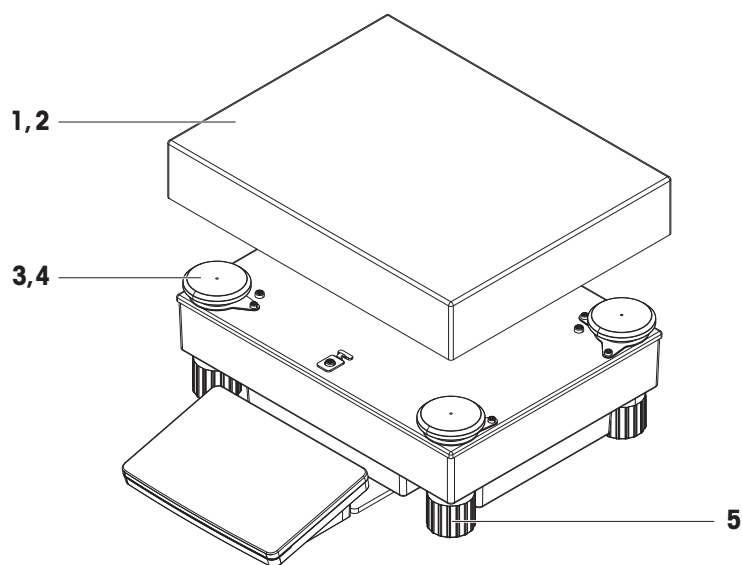
11.2.4 Comparators L weighing platform

11.2.4.1 Comparator L platform, readability 1 mg / 5 mg, LevelMatic, W64 draft shield



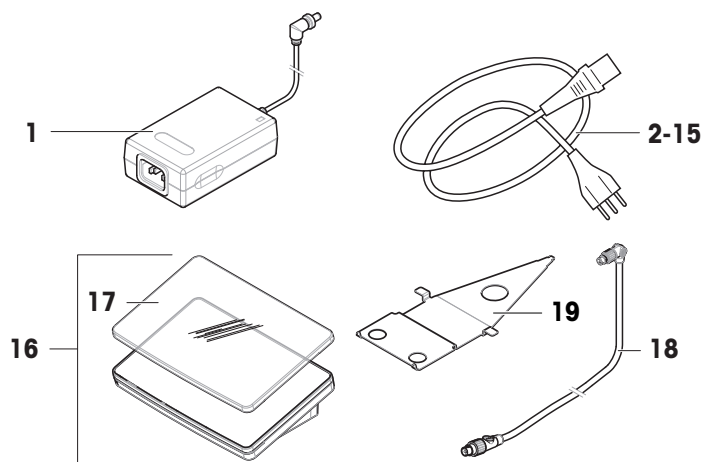
	Order no.	Designation	Remarks
1	11120415	LevelMatic weighing pan	—
2	30416106	Pan support	Including: 4 pcs
3	11133102	Leveling foot	Including: 1 pcs

11.2.4.2 Comparator L platform, readability 5 mg / 10 mg



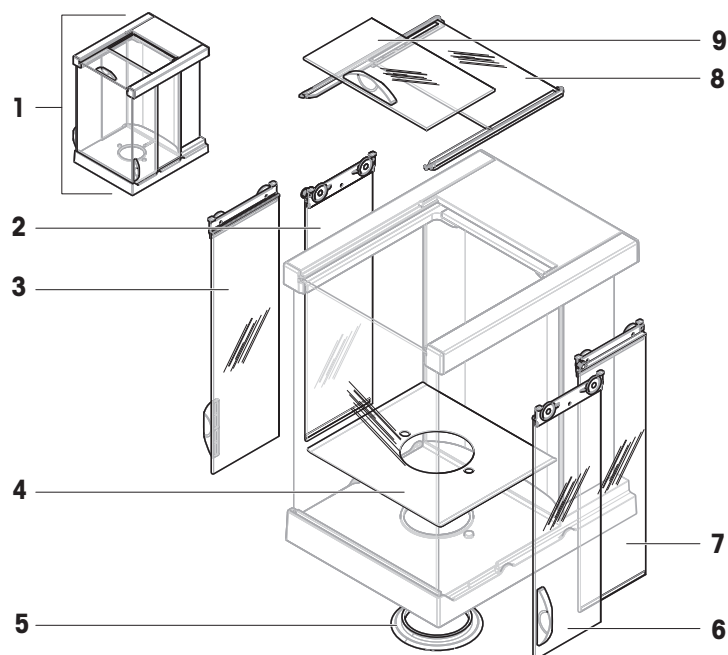
	Order no.	Designation	Remarks
1	239105	Weighing pan (≤ 32 kg)	280 × 360 mm
2	11102124	Weighing pan (≤ 64 kg)	280 × 360 mm
3	30416105	Cap, pan support (≤ 32 kg)	Including: 4 pcs
4	30416107	Cap, pan support (≤ 64 kg)	Including: 4 pcs
5	11133102	Leveling foot	Including: 1 pcs

11.2.5 Miscellaneous



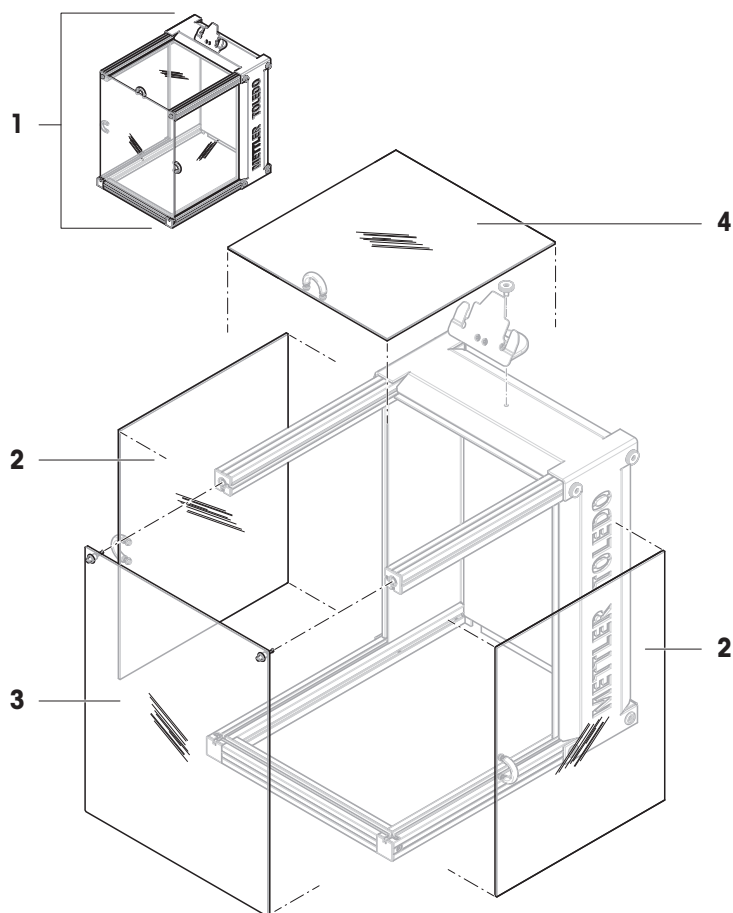
	Order no.	Designation	Remarks
1	30388323	AC/DC adapter	Output: 12 V DC, 5 A
2	88751	Power cable AU	—
3	30015268	Power cable BR	—
4	87920	Power cable CH	—
5	30047293	Power cable CN	—
6	87452	Power cable DK	—
7	87925	Power cable EU	—
8	89405	Power cable GB	—
9	225297	Power cable IL	—
10	11600569	Power cable IN	—
11	87457	Power cable IT	—
12	11107881	Power cable JP	—
13	11107880	Power cable TH, PE	—
14	88668	Power cable US	—
15	89728	Power cable ZA	—
16	30317506	Terminal PRPT	Including: protective cover
17	30125377	Protective cover, terminal	For terminal (PRAT, PRPT)
18	30416123	Cable, terminal	—
19	30416121	Holder, terminal	For S platform

11.2.6 Pro draft shield



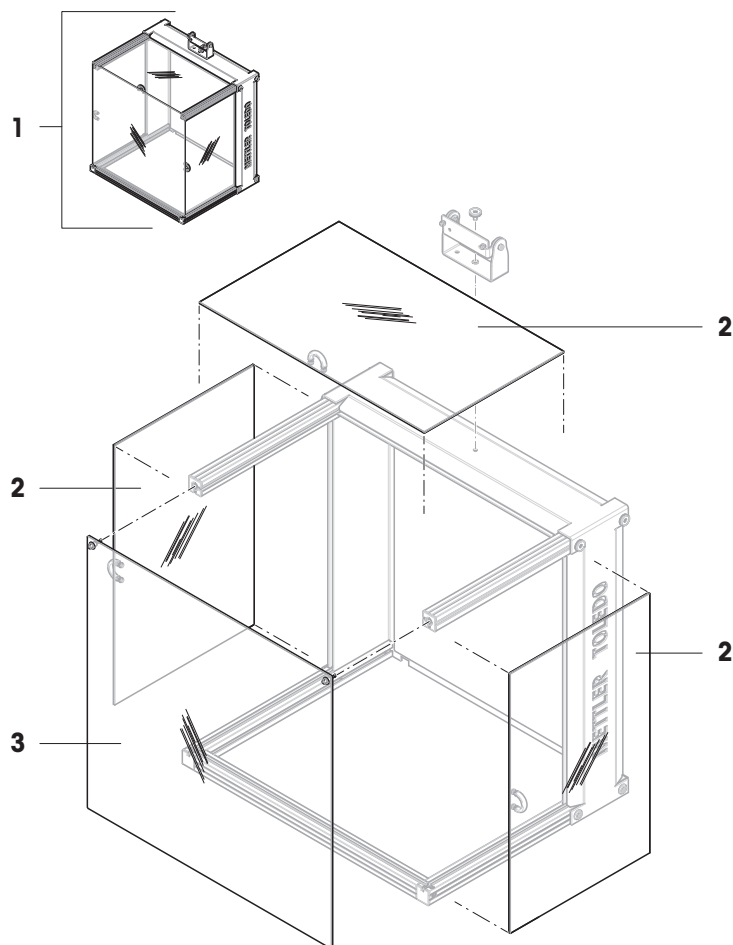
	Order no.	Designation	Remarks
1	30300926	Pro draft shield	Excluding: bottom plate, drip tray
2	11133079	Door, left, back	—
3	11133080	Door, left, front	Including: handle
4	30416155	Bottom plate	For models with LevelMatic weighing pan
5	30416104	Seal, draft shield	—
6	11133078	Door, right, front	Including: handle
7	11133077	Door, right, back	—
8	11133081	Door, top, back	—
9	11133082	Door, top, front	Including: handle

11.2.7 W12 draft shield



	Order no.	Designation	Remarks
1	11134430	W12 draft shield	—
2	11134466	Door, side	Including: 1 door; Excluding: handle
3	11134468	Panel, front	—
4	11134467	Door, top	Excluding: handle

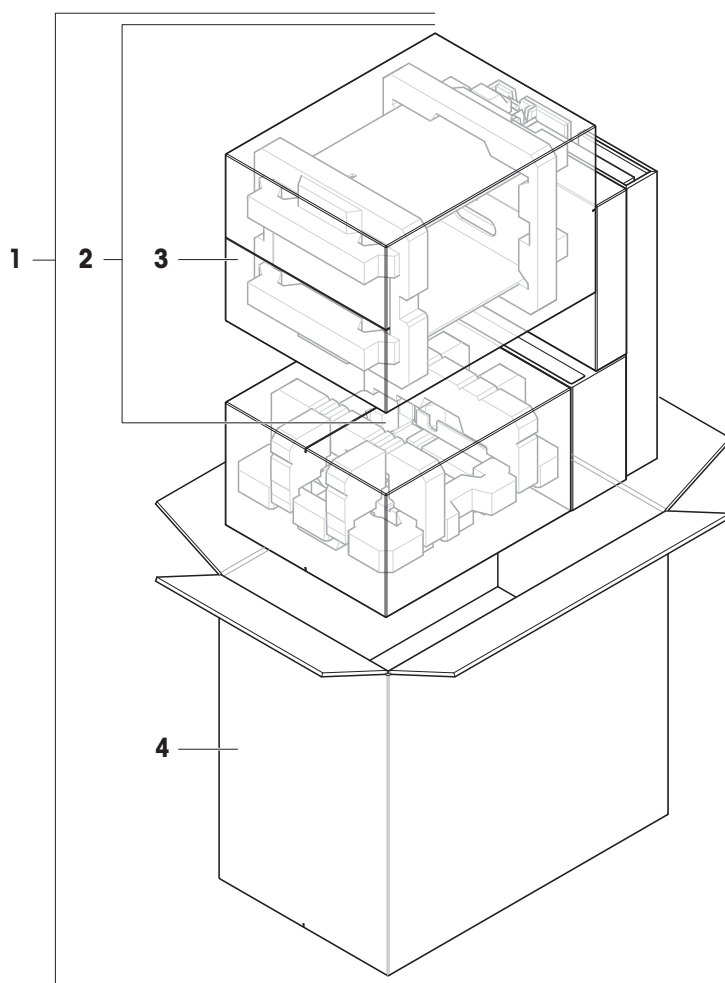
11.2.8 W64 draft shield



	Order no.	Designation	Remarks
1	11134470	W64 draft shield	—
2	11134469	Door, side/top	Including: 1 door; Excluding: handle
3	11134429	Panel, front	—

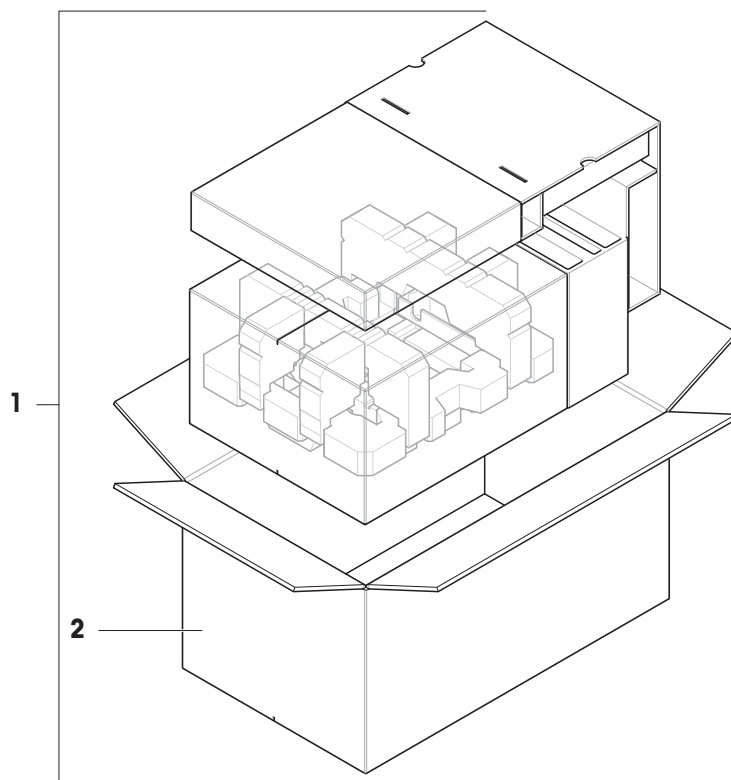
11.2.9 Packaging

11.2.9.1 S platform with draft shield



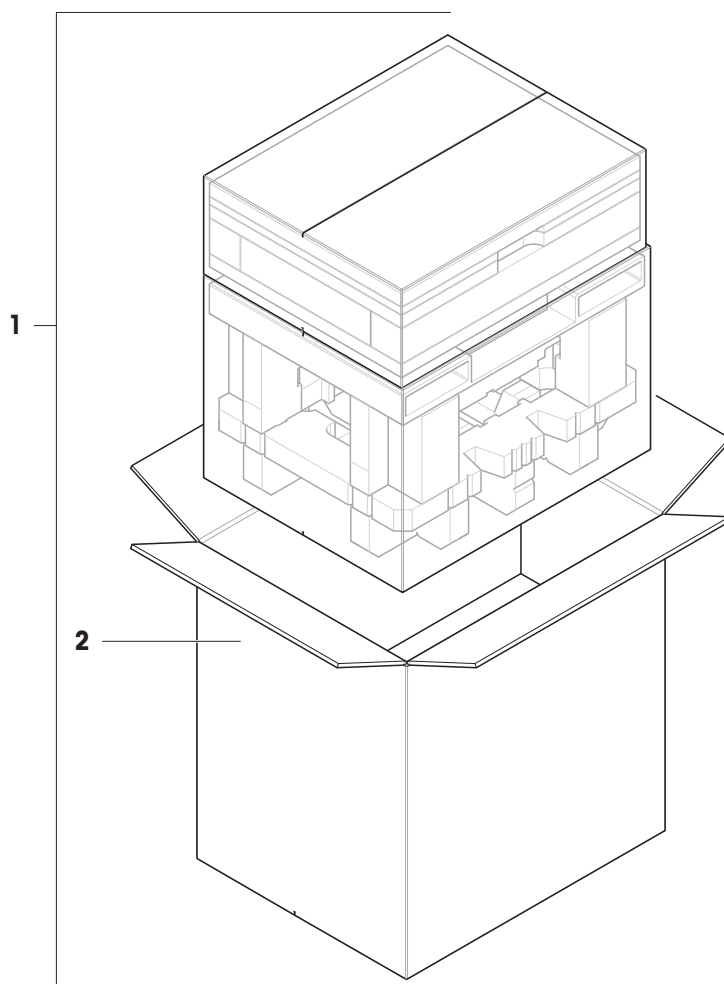
	Order no.	Designation	Remarks
1	30416124	Packaging	Including: export box, inner protection material
2	30416157	Packaging, Pro draft shield	Including: export box, inner protection material
3	30416159	Export box, draft shield	Excluding: inner protection material
4	30416156	Export box	Excluding: inner protection material

11.2.9.2 S platform without draft shield



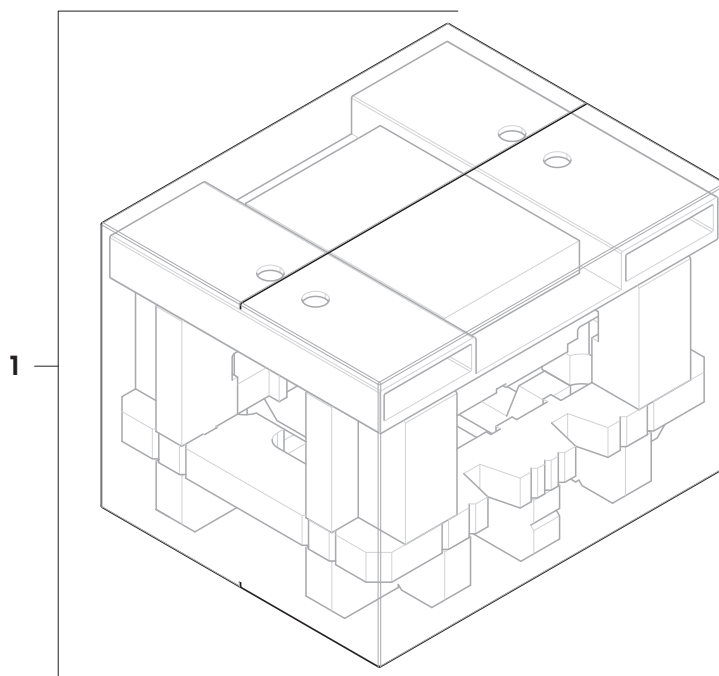
	Order no.	Designation	Remarks
1	30416160	Packaging	Including: export box, inner protection material
2	30416161	Export box	Excluding: inner protection material

11.2.9.3 L platform, readability 10 mg



	Order no.	Designation	Remarks
1	30416125	Packaging	Including: export box, inner protection material
2	30008482	Export box	Excluding: inner protection material

11.2.9.4 L platform, readability 100 mg and 1g



	Order no.	Designation	Remarks
1	30416162	Packaging	Including: export box, inner protection material

12 Appendix

12.1 Approved balances

12.1.1 Definitions

Approved balances

Approved balances are balances that are subject to the local, legal requirements of "non-automatic weighing instruments", as defined in OIML R76. For approved balances, the net weighing results must comply with a higher level of control. Approved balances are used, for example, for legal metrology, for weight-based trading, or for determination of mass for the application of laws. The term "approved balance" includes legal-for-trade (LFT) balances, certified balances, and registered balances.

The restrictions and special behaviors of these balances are described in the present section as well as in specific balance settings throughout the manual.

To identify approved balances, the characters /M or /A are appended to the model names.

Actual scale interval, **d**

The value **d** represents the "actual scale interval". According to OIML R76-1 [T.3.2.2], it represents the difference between two consecutive indicated values. In some countries, the value **d** is defined as the "scale division" or the "scale division interval". In practice, it is often referred to as the "readability".

Verification scale interval, **e**

The value **e** represents the "verification scale interval" [OIML R76-1: T.3.2.3]. This value is used for the classification and verification of an instrument. It represents the absolute accuracy of the instrument and is relevant in the context of market surveillance.

The minimum value of the verification scale interval is 1 mg. [OIML R76-1: 3.2]

12.1.2 Descriptive markings

The descriptive markings of the instrument are on the model label, according to OIML R76-1 [7.1.4]:

- **Min**: minimum capacity
- **Max**: maximum capacity (referred to as "capacity" in this document)
- **e**: verification scale interval
- **d**: actual scale interval

The type label also contains those descriptive markings, as well as other metrological characteristics and limits of the instrument.

12.1.3 Restrictions on zeroing and taring

Zeroing the balance

- When switching on the balance, an initial zero is performed. If the load is more than 20% of the balance capacity during the initial zero, the zeroing is not possible and no weighing value is displayed. [OIML R76-1: T.2.7.2.4 and 4.5.1]
- During operation, the range for which a zero can be performed is $\pm 2\%$ of the balance capacity. [OIML R76-1: 4.5.1]

Taring the balance

- It is not possible to tare the balance if the gross weight is negative. [OIML R76-1: 4.6.4]

12.1.4 Factory method: General Weighing

All balances are delivered with a factory method named **General Weighing**. For approved balances:

- The factory method cannot be deleted.
- The unit of the factory method **General Weighing** is set to **g** and cannot be edited.

- When switching on the balance, the factory method is shown on the weighing screen, regardless of which method was running when the balance was switched off.
- For the tolerance profile used by the factory method, the setting **Display readability** is set to **1d** and cannot be edited.

12.1.5 Representation of weighing results

The representation of weighing results from approved balances follows rules with respect to the weighing units, the weight value, and the indicator of the type of weight. These rules are described in the following paragraphs.

Unit

- A reduced set of units is available for selection.
- Units defined by the user (**Custom unit**) are restricted to characters that cannot be confused with other standard units. The following values are not allowed (uppercase and lowercase letters):
 - all common units, abbreviation or full name, for example, g, gram, kg, ct, oz, etc.
 - c, ca, car, cm, crt, cart, kt, gr, mgr, ugr, kgr, gra, mgra, ugra, kgra, grm, mgrm, ugrm, kgrm, mgram, ugram, kgram, k, kilo, to, tn, sh, tael, dram, dr, lboz, gramme, tonne, livre, once, lbt, cwt, dwt
 - all common units starting with the letter "o", where the "o" is replaced by the number "0", for example, Oz, Ozt, etc.
 - all common units where the letter "s" is added at the end

Weighing result

If the actual scale interval is smaller than the verification scale interval ($d < e$), the digits that are smaller than **e**, are called non-verified digits. For balances showing up to four digits ($d \geq 0.1$ mg), the non-verified digits are marked. For example, a weight of 100 mg placed on a balance with **e** = 1 mg and **d** = 0.1 mg would be printed as 100.[0] mg. [OIML R76-1: 3.4.1, 3.4.2]

- primary weight value on the main weighing screen: the non-verified digits are grayed out
- secondary weight value (**Info weight**) on the main weighing screen: the non-verified digits are grayed out
- **Results list**, detailed view: the non-verified digits are in brackets
- **Alibi memory**: the non-verified digits are in brackets
- Printout: the non-verified digits are in brackets
- Data export: no special marking

If custom units are used, the non-verified digits are not marked.

The depiction of the weight values does not affect the accuracy of the weighing results. That is consistent with legal metrology requirements.

Indicator for weighing result

The type of weighing result, such as **Net weight**, **Tare weight**, or **Gross weight**, is marked according to OIML R76-1 [T.5.2, T.5.3, 4.6.5, 4.6.11, 4.7].

Indicator	Main weighing screen	Results list	Printout
Net weight	Net	Net weight	N
Tare weight	—	Tare weight	T
Preset tare weight	—	Preset tare weight	PT
Gross weight	—	Gross weight	G ¹
Calculated weight	*	*	*
Unstable weight	o	D	D

¹ If only the gross weight is included on the printout, the indicator **G** is omitted.

Printout examples

The following examples refer to a balance with **e** = 1 mg and **d** = 0.1 mg. The tare or preset tare value is 200 mg, the gross weight is 743.2 mg and the net weight is 543.2 mg.

- with manual tare:

N	543. [2] mg
T	200. [0] mg
G	743. [2] mg

- with preset tare:

N	* 543. [2] mg
PT	200.0 mg
G	743. [2] mg

12.1.6 MT-SICS

The following commands are not available for approved balances:

- **C0**
 - It is not possible to change the adjustment type.
- **TI**
 - It is not possible to do an immediate tare. [OIML R76-1: 4.6.8]
- **ZI**
 - It is not possible to do an immediate zero. [OIML R76-1: 4.5.6]

12.1.7 Reference

OIML R 76-1 Edition 2006 (E), Non-automatic weighing instruments, Part 1: Metrological and technical requirements – Tests

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Good Weighing Practice™

GWP® is the global weighing standard, ensuring consistent accuracy of weighing processes, applicable to all equipment from any manufacturer. It helps to:

- Choose the appropriate balance or scale
- Calibrate and operate your weighing equipment with security
- Comply with quality and compliance standards in laboratory and manufacturing

 www.mt.com/GWP

www.mt.com/XPR-precision

For more information

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