

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 3.51.

EULA

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

► www.mt.com/EULA

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

1.1 Further documents and information

► www.mt.com/jewelry

This document is available in other languages online.

► www.mt.com/jet-RM

Search for software downloads

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

Search for documents

► www.mt.com/library

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

► www.mt.com/contact

1.2 Explanation of conventions and symbols used

Conventions and symbols

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

 **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 Compliance information

European Union

The instrument complies with the directives and standards listed on the EU Declaration of Conformity.

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.

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

The FCC Supplier Declaration of Conformity is available online.

► <http://www.mt.com/ComplianceSearch>

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.

► www.mt.com/jet-RM

► www.mt.com/library

2.1 Definitions of signal warnings and warning symbols

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

Signal words

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

Warning symbols



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



Electrical shock



Notice

2.2 Product specific safety notes

Intended use

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

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

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 assumes that the instrument owner trains users to safely use the instrument in their workplace and deal with potential hazards. METTLER TOLEDO 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 supply cable and AC 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 damaged cables and power plugs.



NOTICE

Damage to the instrument due to the use of unsuitable parts

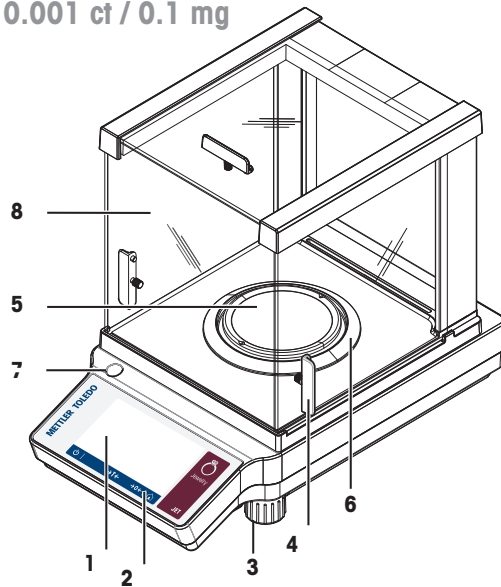
Using unsuitable parts with the instrument can damage the instrument or cause it to malfunction.

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

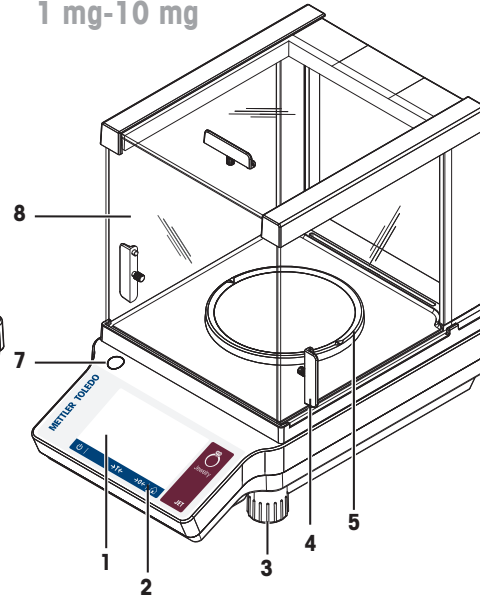
3 Design and Function

3.1 Overview balance

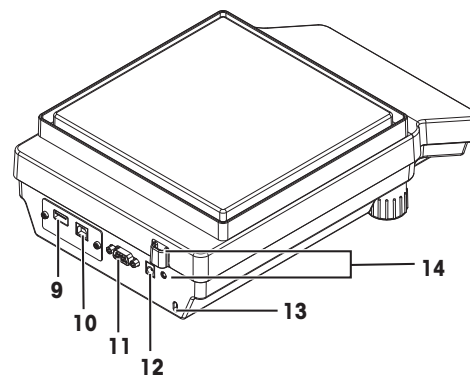
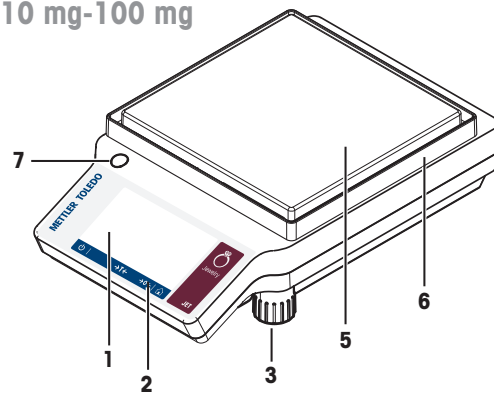
0.001 ct / 0.1 mg



1 mg-10 mg

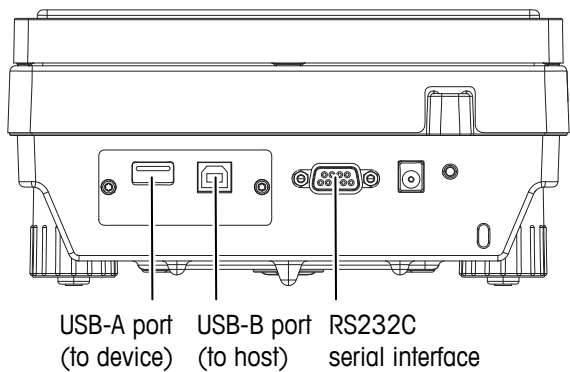


10 mg-100 mg



1	Touch screen (Capacitive color TFT)	8	Glass draft shield
2	Operating keys	9	USB-A port (to device)
3	Leveling foot	10	USB-B port (to host)
4	Handle for operation of the draft shield door	11	RS232 serial interface
5	Weighing pan	12	Socket for AC/DC adapter
6	Draft shield element	13	Kensington slot for anti-theft purposes
7	Level indicator	14	Legal for Trade sealing

3.2 Overview peripheral devices

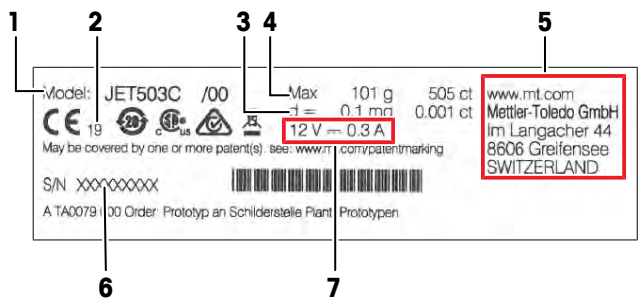


Interfaces and possible connectivity of peripheral devices:

USB-A port (to device)	USB-B port (to host)	RS232C
Barcode reader	PC	RS-P25
USB-P25 printer		Barcode reader
USB memory stick		RS 2 nd display
USB Keyboard		PC

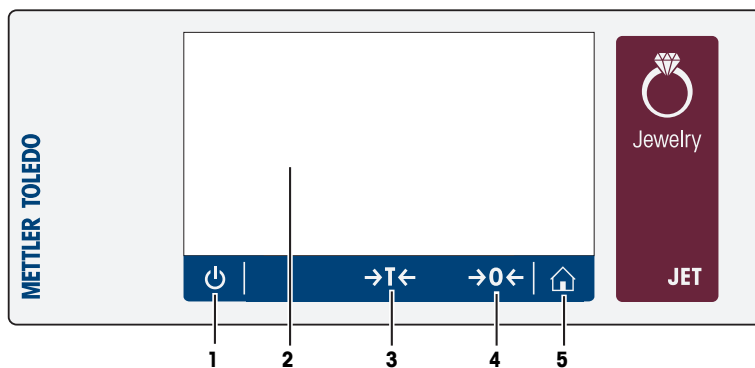
3.3 Overview type plate

The balance type plate is located at the side of the balance, see example illustration and contains the following information:



1	Model designation	2	Year of manufacture
3	Readability	4	Maximum capacity
5	Manufacturer	6	Serial number (SNR)
7	Power supply		

3.4 Overview operation keys



	Key	Name	Description
1		ON/OFF	Switches the balance on or off.
2		Capacitive color TFT touch screen	General navigation
3		Tare	Tares the balance.
4		Zero	Zeros the balance.
5		Home	Returns from any menu level, or other window to the application home screen.

3.5 User Interface



NOTICE

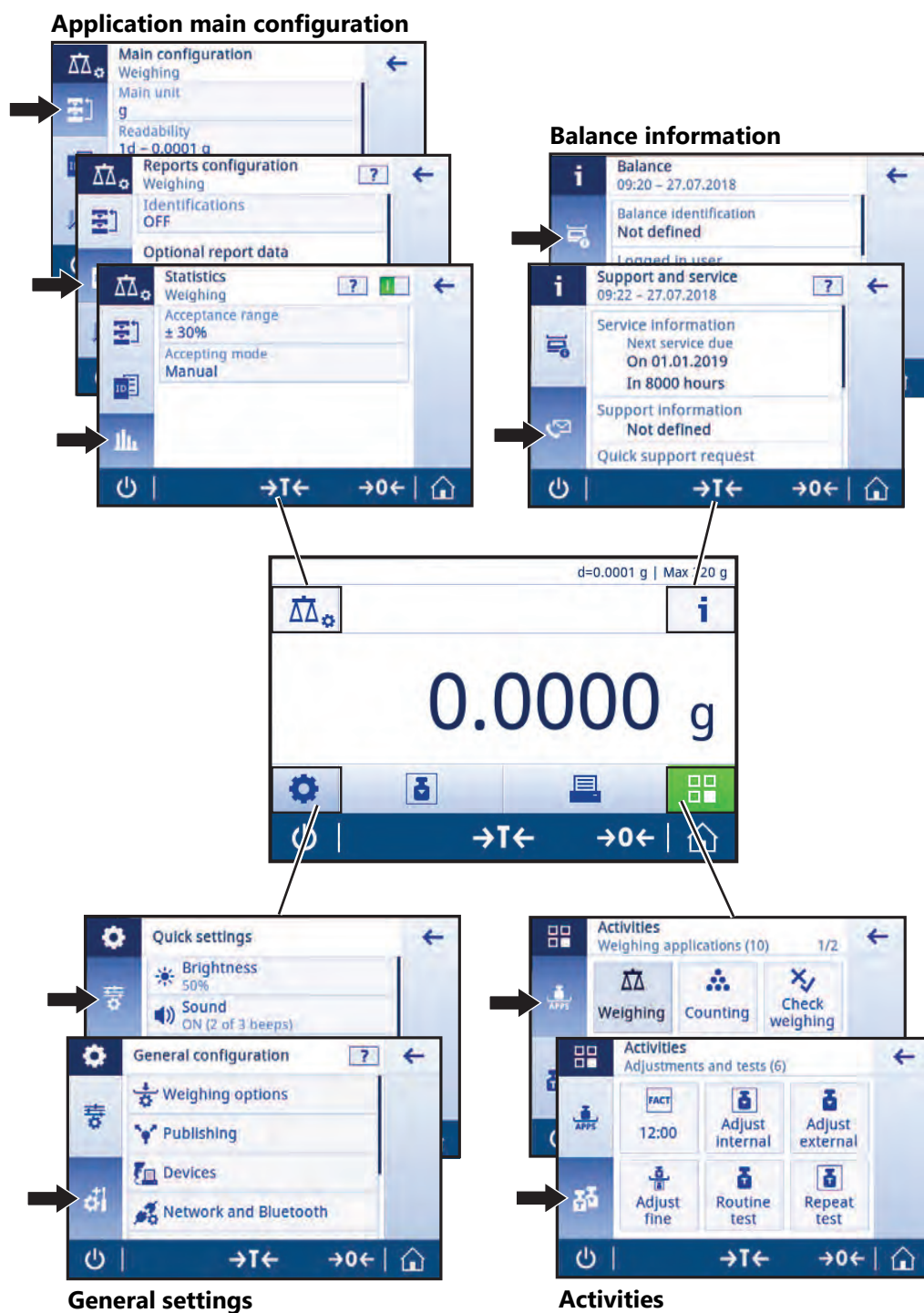
Damage to the touch screen due to pointed or sharp objects

- Operate the touch screen with your fingers.

The screen displays information and allows the user to enter commands by tapping certain areas on its surface. You can choose the information displayed on the screen, change the balance settings and perform certain operations on the balance.

3.5.1 Main settings and activities at a glance

Depending on the application, the options available to be selected and their content may differ.




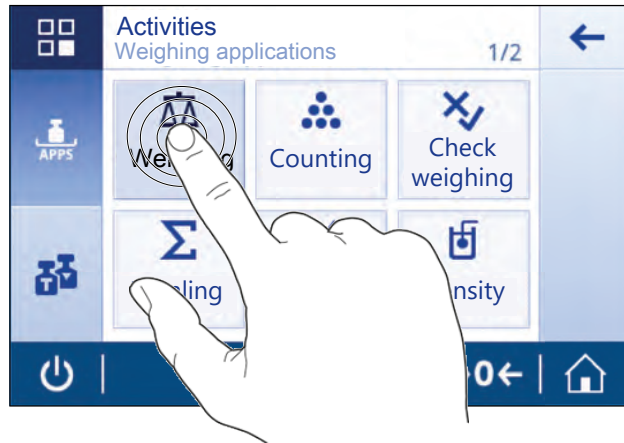
3.5.2 Touch screen navigation

To interact with the balance, use the screen and the operating keys at the bottom of the screen.

Opening an application

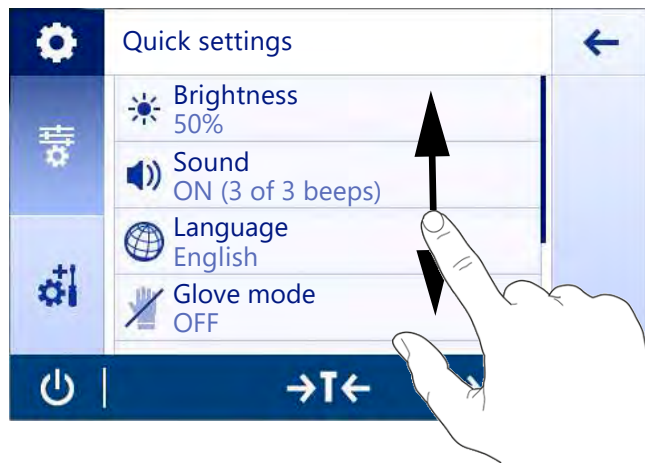
Due to its size, the display does not show all available applications at once. Scroll the applications by swiping the touchscreen horizontally.

To open settings or applications, tap the application symbol, e.g.,  **Weighing**.



Scrolling

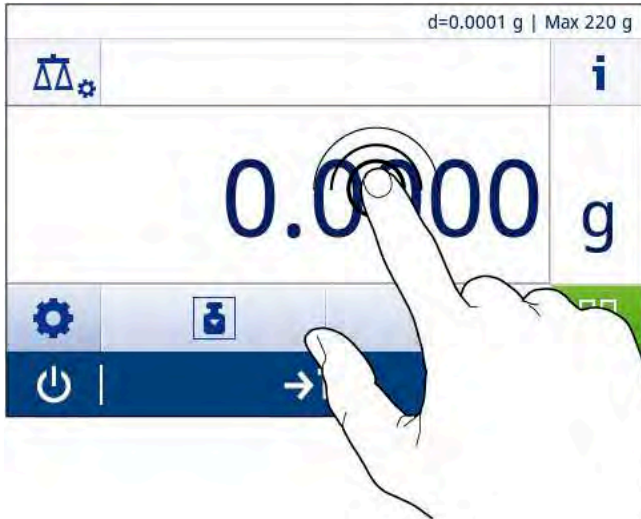
If not all content cannot be displayed on one page, it is indicated either by the page number (e.g. 1 / 2) or a blue scroll bar at right side of the screen. To scroll, swipe your finger across the screen, either horizontally (if page number is shown) or vertically (if blue scroll bar is shown).




Using shortcuts

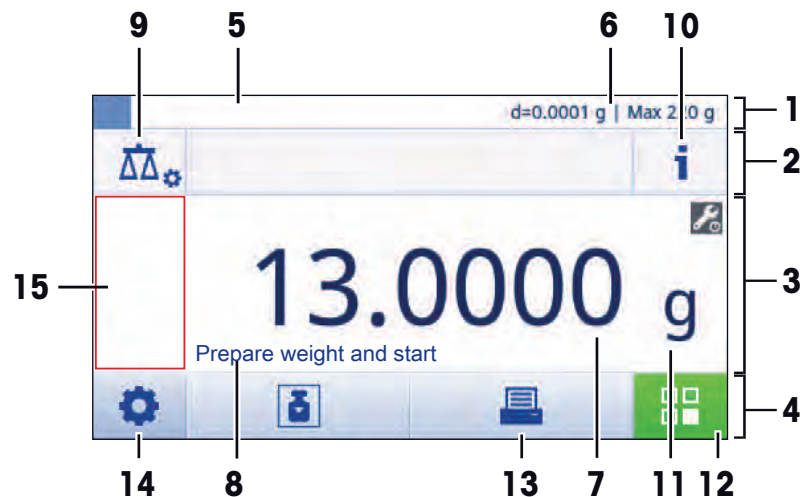
To simplify navigation on the touch screen, there are a few shortcuts that provide quick access to key areas of the balance. For example, the weighing value field on the application home screen works as a shortcut (see screen below), as does the weighing unit next to the weighing value field. Other shortcuts may be available to use depending on the application.

Every setting that can be changed directly via shortcut, can also be changed in the main configuration settings for that application.



3.5.3 Application home screen

The application home screen appears after switching the balance on. It always displays the last application that was in use before the balance was switched off. The application home screen is the main screen of the balance. Every function can be accessed from here. You can return to the application home screen at any time by pressing the home button  in the lower right corner of the screen.



Information and work bars

	Name	Description
1	Weighing information bar	Displays the weighing-in aid and general balance information.
2	Work title bar	Displays information about the current activity.
3	Value bar	Displays information about the current weighing process.
4	Main navigation	Work-related functions.

Information fields

	Name	Description
5	Weighing-in aid	A dynamic graphic indicator displays how much of the total weighing range is in use.
6	Short balance information	Readability and capacity of the balance.*
7	Weighing value field	Displays the value of the current weighing process (model-specific).
8	Coach text field	Displays instructions for the current weighing process.

* For legal-for-trade approved balances: **Min** (minimum capacity) and **e** (verification of scale interval) are shown in the upper left corner.

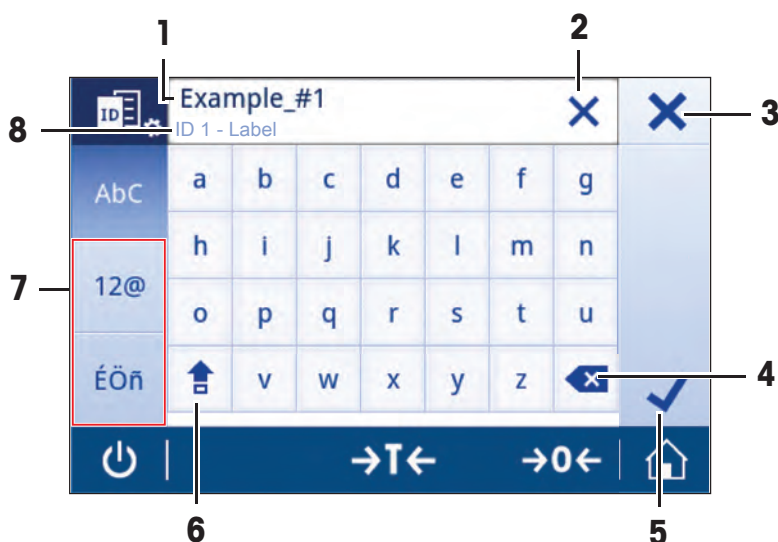
Action buttons

	Name	Description
9	Activity configuration	To configure the current application, e.g., Weighing .
10	Balance information	Displays detailed technical data about the balance.
11	Weighing unit	Displays the unit of the current weighing process (model- and country-specific).
12	Activities	Opens the activities selection.
13	Print	Prints out or transfers results and/or settings (printer required).
14	Settings	Configures balance and user settings/preferences (application independent).
15	Status information field	Displays information about the system status.

3.5.4 Entering characters and numbers

The keyboard allows the user to enter characters, including letters, numbers and a range of special characters.

If a barcode reader is connected to your balance and your sample provides a barcode, scan the product barcode instead of entering the designation manually (e.g. the ID can be scanned via barcode reader to ensure that the sample is clearly assigned to the corresponding product). Additionally, it is possible to connect a USB keyboard to enter the information.



	Name	Description
1	Input field	Displays all characters that have been entered.
2	Delete all	Deletes all entered characters.
3	Discard	Discards the entered data and exits the dialog.
4	Delete	Deletes the last character.
5	Confirm	Confirms the data entered.
6	Shift	Switches between lower and upper case letters.
7	Specialized tabs	Switches keyboard mode for entering letters, numbers or special characters.
8	Explanation field	Extra information about the value to be entered.

3.5.5 Balance information

Navigation:

Balance identification

The balance identification section contains identification data for hardware and software.

– Tap  to display **Balance identification**.

⇒ The display shows the **Balance identification** as defined by the user. See System settings and information about the software and hardware.

Balance support information

The balance support information section contains information about last and next service checks and provides support contact information.

– Tap  to display **Support and service**.

⇒ The display shows the **Service information**, **Support information**, and **Quick support request**.

Quick support request

The **Quick support request** option contains a unique QR (Quick Response) code. If you have a QR code reader application on your smart phone, scan the QR code on the balance screen. The smartphone will automatically create an email with all relevant service information.



Note

Make sure that the QR code can be identified by the smart phone. A program to read the QR codes must be installed. Make sure that there are no access restrictions, which could block your email program in some way.

4 Installation and Putting into Operation



WARNING

Risk of death or serious injury due to electric shock

The instrument must be disconnected from the power supply before performing all setup and assembly work.

4.1 Selecting the location

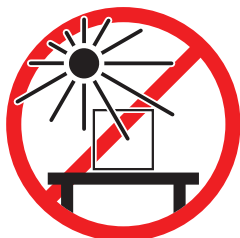
A balance is a sensitive precision instrument. The location where it is placed will have a profound effect on the accuracy of the weighing results.

Requirements of the location

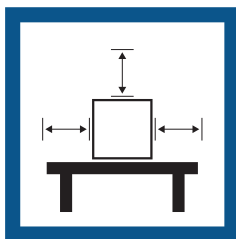
Place indoors on stable table



Avoid direct sunlight



Ensure sufficient spacing



Avoid vibrations



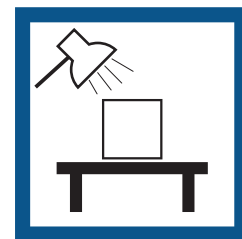
Level the instrument



Avoid strong drafts



Provide adequate lighting



Avoid temperature fluctuations



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

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

4.2 Unpacking the balance

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

Retain all parts of the packaging. This packaging offers the best possible protection for transporting the balance.

4.3 Scope of delivery

Components		0.001 ct / 0.1 mg	1 mg / 10 mg with draft shield	10 mg / 100 mg without draft shield
Draft shield	170 mm	✓	✓	–
Draft shield element		✓	–	✓
Weighing pan	∅ 90 mm	✓	–	–
	∅ 120 mm	–	✓	–
	180 × 180 mm	–	–	✓
Pan support 90 ∅		✓	–	–
Carat pan	S 80 ∅ × 20 mm	✓	–	–
	M 90 ∅ × 30 mm	✓	–	–
	L 90 ∅ × 45 mm	✓	–	–
Protective cover		✓	✓	✓
Universal AC/DC adapter		✓	✓	✓
User Manual		✓	✓	✓
Declaration of conformity		✓	✓	✓

4.4 Assembling the balance



CAUTION

Injury due to sharp objects or broken glass

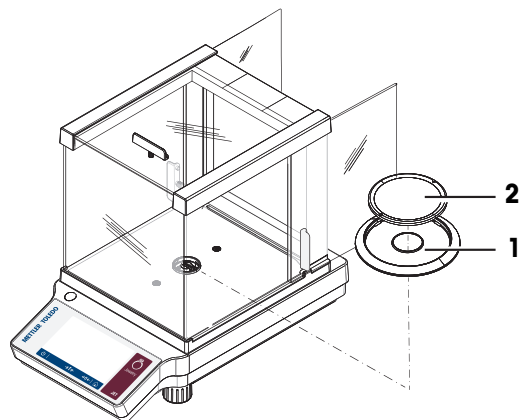
Instrument components, e.g., glass, can break and lead to injuries.

- Always proceed with focus and care.

Balances with a readability of 0.001 ct / 0.1 mg

Place the following components on the balance in the specified order:

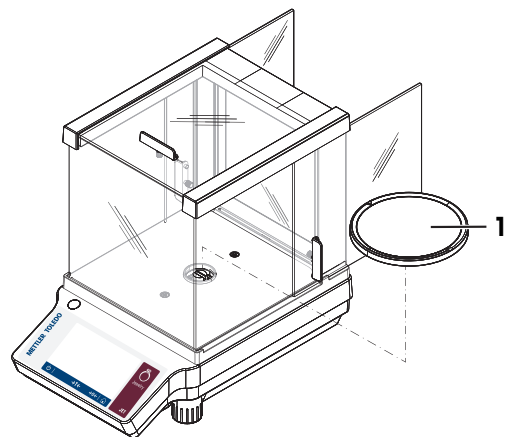
- 1 Push the side glass doors back as far as they will go.
- 2 Insert the draft shield element (1).
- 3 Insert the weighing pan (2).



Balances with a readability of 1 mg / 10 mg

Place the following components on the balance in the specified order:

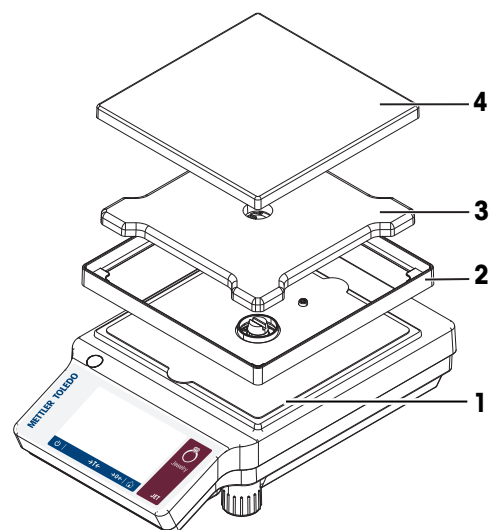
- 1 Push the side glass doors back as far as they will go.
- 2 Insert the weighing pan (1).



Balances with a readability of 10 mg / 100 mg

Place the following components on the balance in the specified order:

- 1 Place the draft shield element (2).
- 2 Carefully pull apart the draft shield element to fix it under the retaining plate (1).
- 3 Place the pan support (3).
- 4 Place the weighing pan (4).



4.5 Installing protective cover

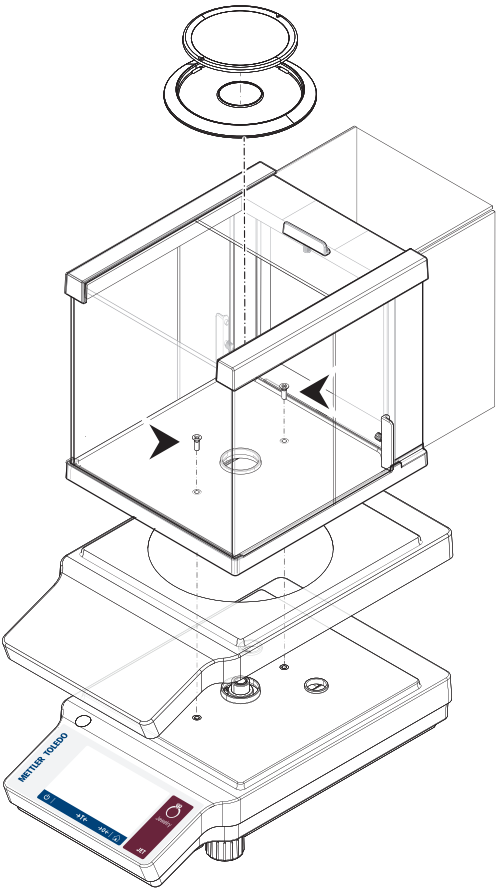
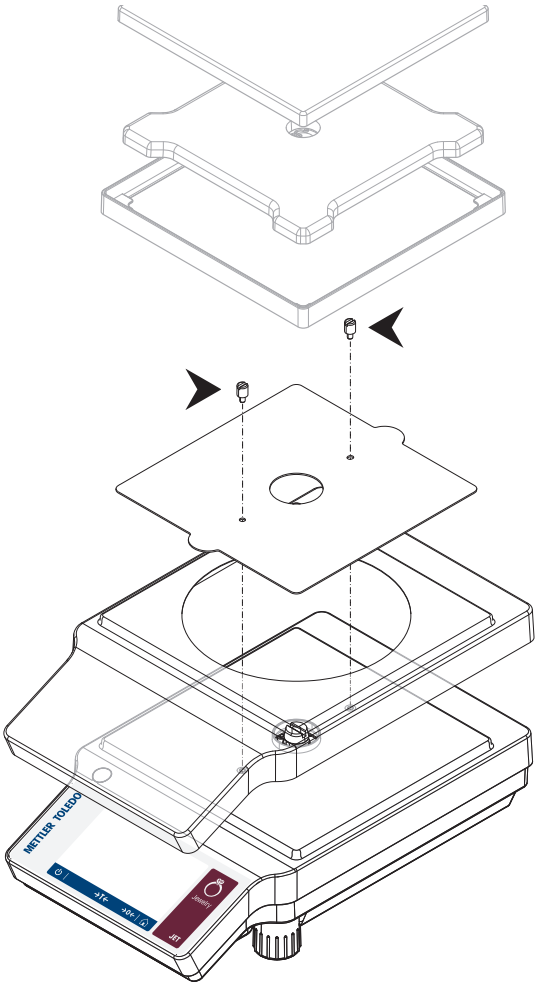


NOTICE

Risk of damage to balance due to incorrect parts

Using incorrect parts with the balance can damage the balance or cause the balance to malfunction.

- Only use parts supplied with the balance, listed accessories and spare parts from Mettler-Toledo GmbH.

Balances with draft shield	Balances without draft shield
<p>Install the protective cover according to the illustrations below, using a flat-head screwdriver.</p> 	<p>Install the protective cover according to the illustrations below, using a cross-recess screwdriver.</p> 

4.6 Putting into operation

4.6.1 Connecting the balance



WARNING

Risk of electric shock

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

- 1 Only use the METTLER TOLEDO power supply cable and AC/DC adapter designed for your balance.
- 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 power plug for damage and replace damaged cables and power plugs.



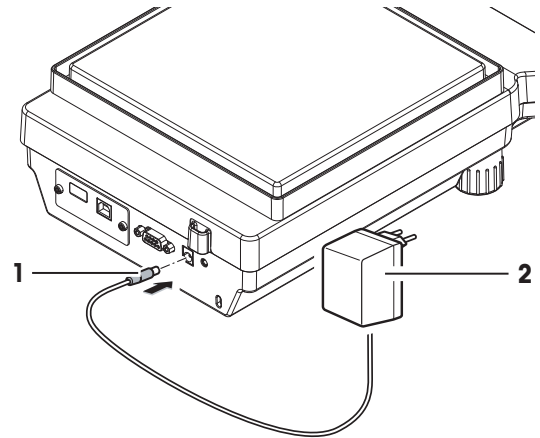
NOTICE

Damage to the AC/DC adapter due to overheating

If the AC/DC adapter is covered or in a container, it is not sufficiently cooled and will overheat.

- 1 Do not cover the AC/DC adapter.
- 2 Do not put the AC/DC adapter in a container.

- 1 Install the cables so that they cannot be damaged and do not interfere with the operation.
- 2 Insert the power cable in a grounded power outlet that is easily accessible.
- 3 Connect the AC/DC adapter (1) to the connection socket on the back of your balance.
- 4 Connect the power cable (2) to the power socket.
- 5 Screw the plug into the balance if applicable.



4.6.2 Switching on the balance

Before using the balance, it must be warmed up in order to obtain accurate weighing results. To reach operating temperature, the balance must be connected to the power supply for at least 30 minutes (60 minutes for 0.1 mg models).

- The balance is connected to the power supply.
- The balance is warmed up.

– Press .

⇒ After the start screen has disappeared, the application home screen will open.

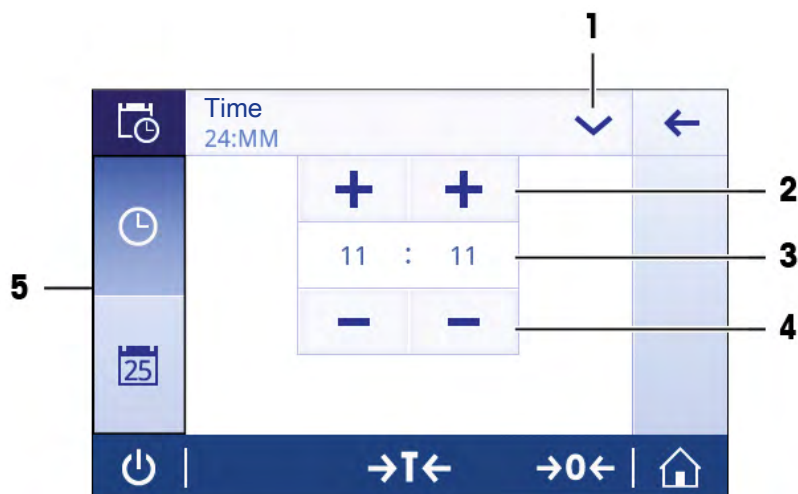
When the balance is switched on for the first time, the **Weighing** application home screen will open. If the balance is switched on again, it will always start with the screen of the application last used before switching it off.

4.6.3 Changing the date and time

Navigation:  >  **General configuration > System settings > Date and Time**

The dialog (Picker view) allows the user to set the date and time.

Tap ⌚ for **Time** and 📅 for **Date**. The format can be selected by tapping ▼.



	Name	Description
1	Change date/time format	Various date/time formats can be selected.
2	Pick button	Increment.
3	Picker field	Displays the defined time/date.
4	Pick button	Decrement.
5	Selection tabs	Tabs of the selectable sub-categories.

4.6.4 Leveling the balance

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

Leveling intervals

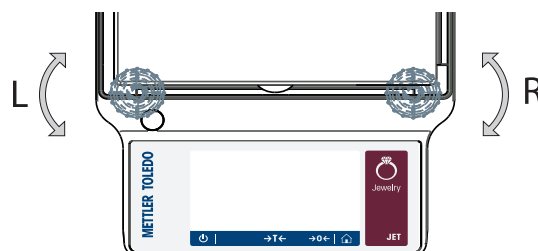
Check and - if necessary - adjust the bubble level:

- when the balance is used for the first time.
- after moving the balance to a new location.
- at regular intervals.

Leveling procedure

The balances are leveled manually by turning the leveling feet at the bottom of the housing.

- 1 Position the balance at the selected location.



- 2 Align the balance horizontally.
- 3 Turn the two front leveling feet of the housing until the air bubble is in the middle of the glass.



Example

Air bubble at 12 o'clock:



turn both feet clockwise.



Air bubble at 3 o'clock:



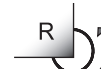
turn left foot clockwise, right foot counterclockwise.



Air bubble at 6 o'clock:



turn both feet counterclockwise.



Air bubble at 9 o'clock:



turn left foot counterclockwise, right foot clockwise.



4.6.5 Adjusting the balance

To obtain accurate weighing results, the balance must be adjusted to match the gravitational acceleration at its location. This is also dependent on the ambient conditions. After reaching the operating temperature, it is important to adjust the balance in the following cases:

- Before the balance is used for the first time.
- If the balance has been disconnected from the power supply or in the event of power failure.
- After significant environmental changes, e.g., temperature, humidity, air draft or vibrations.
- At regular intervals during weighing service.

See also

📖 Activities - Adjustments and tests ► Page 63

4.7 Performing a simple weighing

Navigation:  >  Activities - Weighing applications >  Weighing

4.7.1 Weighing

Zeroing

Use the **→0←** zeroing key before starting to weigh anything.

- 1 Unload the balance.
 - 2 Press **→0←** to zero the balance.
- ⇒ All weight values are measured in relation to this zero point.

Taring


If you are working with a weighing container, tare the balance.


- 1 Place a container on the weighing pan.
⇒ The weight is displayed.
- 2 Press **→T←** to tare the balance.
⇒ **0.000 g** and **Net** appears in the display. **Net** indicates that all weight values displayed are net values.

Weighing



- Place the sample in the container.
⇒ The results are now displayed.
- If the container is removed from the balance, the tare weight will be shown as a negative value.
- The tare weight remains stored until the **→T←** key is pressed again or the balance is switched off.

Print / transmit data

The balance can send data to a printer or a PC. Press the  key to transmit the weighing results or settings via the interface. The procedure for activating and configuring a printer is described in "Publishing" and "Devices".

- Printer is connected to the balance.
- Printer is switched on.
- Printer is activated and configured.
- Tap .
- ⇒ The data are transmitted.

Switching off

- 1 Press and hold  until the dialog **Switch-off** appears.
- 2 Tap  to confirm.
 - ⇒ The balance switches off and enters standby mode.
- After switching on from standby mode, the balance does not need to warm up. It is immediately ready to start weighing.
- If the balance has been switched off manually, the display will also be off.
 - To switch off the balance fully, it must be disconnected from the power supply.


4.7.2 Changing the readability

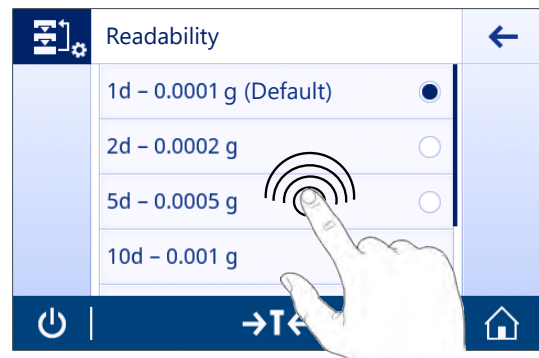
Changing the readability

There are several readabilities available. The default readability (d) is model-specific.

- 1 Tap the weighing value.



- 2 Select the desired readability.
- 3 Confirm the selected readability by tapping .
- ⇒ The readability has now been changed.



4.7.3 Switching weight units

Switching weight units

There are several weighing units available. The default value is country-specific.

The weighing unit can be selected using the activity configuration or via shortcut. This example describes how to change the weighing unit via shortcut.

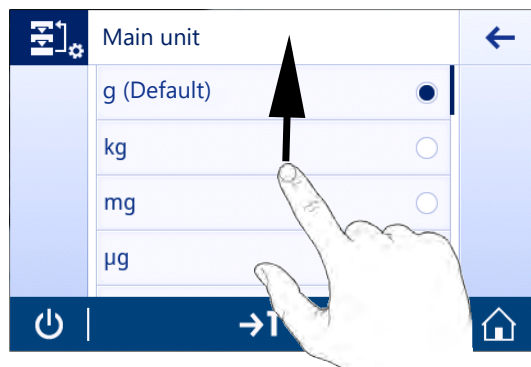
Note

With legal-for-trade approved balances, the menu topic has a fixed setting and cannot be changed.

- 1 Tap the weighing unit.
⇒ The screen **Main unit** appears.



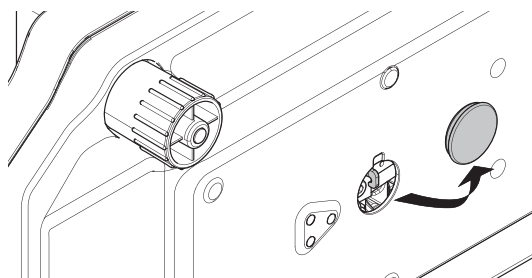
- 2 Select the desired weighing unit by tapping it.
- 3 Tap ✓ to confirm.
⇒ The weighing unit has now been changed.



4.8 Weighing below the balance

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

- 1 Press and hold the key.
 - 2 Disconnect the balance from the AC/DC adapter.
 - 3 Disconnect all interface cables.
 - 4 If present, carefully remove all glass draft shields.
 - 5 Remove the weighing pan, pan support and, if present, the draft shield element.
 - 6 Carefully turn the balance onto its side.
 - 7 Remove the weighing cap of the weighing hook. Keep it for later use.
 - 8 Put the balance upright again and reinstall all components in reverse order.
- ⇒ You can now perform weighings under the balance.



4.9 Transporting, packaging and storage

Preparing the balance for transport



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 Press and hold the key.
- 2 Disconnect the balance from the AC/DC adapter.
- 3 Disconnect all interface cables.

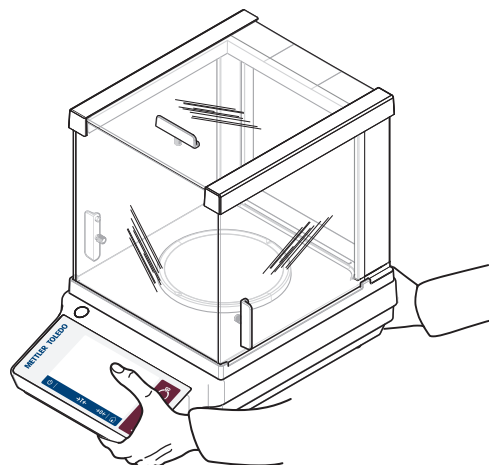
4.9.1 Transporting over short distances

To move the balance over a short distance to a new location, follow the instructions below.

- 1 Hold the balance with both hands as shown.
- 2 Carefully lift the balance and carry the balance in horizontal position to the new location.

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

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



4.9.2 Transporting over long distances

To transport the balance over long distances, always use the original packaging.

See also

📄 Unpacking the balance ► Page 17

4.9.3 Packaging and storage

Packaging

Store all parts of packaging in a safe place. The elements of the original packaging are developed specifically for the balance and its components to ensure maximum protection during transportation or storing.

Storage

Store the balance under following conditions:

- Indoor and in the original packaging.
- According to the environmental condition, see "Technical data".
- When storing for longer than six months, the rechargeable battery may be down (date and time get lost).

5 General Settings

Navigation:

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

The section **Settings** is divided into two sub-sections:

-  **Quick settings**
-  **General configuration**

Printing settings

All settings and configuration data can be printed out.

- Printer is connected and configured.

1 Tap .

⇒ The screen **Print and export report** appears.

2 Select the settings, e.g., **Quick settings/Preferences** and **Weighing options** for printing and confirm with .

⇒ A list of the selected settings will be printed.








Parameter	Description	Values
Print	Select the settings for printing.	Quick settings* General configuration* Publishing* Devices and connectivity* System settings* Access protection* ISO-Log

* Factory setting

5.1 Quick settings




Navigation: > **Quick settings**

The following options are available:

-  **Date and Time**
-  **Brightness**
-  **Sound**
-  **Language**
-  **Glove mode**
-  **Quick adjustment**
-  **Date/Time widget**

5.1.1 Date and time

Navigation: > **Quick settings** > **Date and Time**

This menu item can be used to set the date and time. Tap  for **Time** and  for **Date**. The format can be selected by tapping .

Parameter	Description	Values
Time format	Sets the time format.	24:MM* 12:MM 24.MM 12.MM
Time	Sets the time. The time can be set with the pick buttons.	Hours Minutes

Date format	Sets the date format.	DD.MM.YYYY* D.MMM YYYY MM/DD/YYYY MMM DD YYYY YYYY- MM-DD
Date	Sets the date. The date can be set with the pick buttons.	Day Month Year

* Factory setting

5.1.2 Brightness

Navigation:  >  **Quick settings** >  **Brightness**

This menu item can be used to adjust the display brightness. Each time you tap the bar, the brightness adjusts in increments of 10%.

The following options can be set:

Parameter	Description	Values
Brightness	Sets the brightness of the display (in 10% increments).	10...100% (50%*)

* Factory setting

5.1.3 Sound

Navigation:  >  **Quick settings** >  **Sound**

This menu item can be used to adjust the sound and the sound volume.

The following options can be set:

Parameter	Description	Values
Stability beep	Indicates when an unstable weight becomes stable.	OFF Low* Medium High
Workflow feedback beep	Provides additional feedback in the event of input errors, messages and status notifications.	OFF Low* Medium High
Touch beep	Notifies every touch of the interactive elements on the touch display and zero/tare bar.	OFF* Low Medium High

* Factory setting

5.1.4 Language

Navigation:  >  **Quick settings** >  **Language**

This menu item can be used to set the dialog language. The language changes immediately. All windows and messages are displayed in the selected language.

The following options can be set:

Parameter	Description	Values
Language	Sets the preferred language. The language is normally preset for the country of use.	English Deutsch Français Español Italiano Русский Polski Český Magyar Nederlands Português PT. Português BRA. Türkçe 中文 日本語 한국어

5.1.5 Glove mode

Navigation:  >  **Quick settings** >  **Glove mode**

If **Glove mode** activated, the touch screen becomes more sensitive and easier to navigate when wearing gloves.


The following options can be set:

Parameter	Description	Values
Glove mode	Activates or deactivates the function Glove mode .	ON OFF*

* Factory setting

5.1.6 Quick adjustment

Navigation:  >  **Quick settings** >  **Quick adjustment**

If **Quick adjustment** is activated, the symbol  appears in the main navigation of the application. You can start the adjustment directly from the work area.

The following options can be set:

Parameter	Description	Values
Quick adjustment	Activates or deactivates Quick adjustment .	ON* OFF
	Starts the adjustment directly from work area.	Internal adjustment (model-specific) External adjustment

5.1.7 Date/Time widget

Navigation:  >  **Quick settings** >  **Date/Time widget**

This option can be activated to permanently display the current date and time in the work area in the value bar above the weighing value field.

The following options can be set:

Parameter	Description	Values
Date/Time widget	Activates or deactivates the permanent display of the current date and time in the work area.	ON OFF*

* Factory setting

5.2 General configuration

Navigation:  >  General configuration

The following options are available:

-  **Weighing options**
-  **Publishing**
-  **Devices/connectivity**
-  **System settings**
-  **Access protection**
-  **ISO-Log**

5.2.1 Weighing options

Navigation:  >  General configuration >  Weighing options

This menu item can be used to adapt the balance to suit specific requirements.

5.2.1.1 Weighing mode

Navigation:  >  General configuration >  Weighing options > Weighing mode

This setting can be used to configure the balance to the weighing mode.

The following options can be set:

Parameter	Description	Values
Weighing mode	Sets the weighing mode. Universal = for all standard weighing applications. Dosing = for dosing liquid or powdery samples.	Universal* Dosing

* Factory setting

5.2.1.2 Environment

Navigation:  >  General configuration >  Weighing options > Environment

This setting is used to adapt the balance optimally to the ambient conditions at specific locations.

The following options can be set:

Parameter	Description	Values
Environment	Sets the ambient conditions.	Stable Standard* Unstable Very unstable

* Factory setting

5.2.1.3 Autozero

Navigation:  >  General configuration >  Weighing options > Autozero

This menu item can be used to switch the automatic zero correction **ON** or **OFF**. It corrects the zero deviation, that may occur, e.g., due to slight fouling of the weighing pan.

Legal-for-trade

The **Autozero** cannot be deactivated for legal for trade balances (except for some selected countries).

The following options can be set:

Parameter	Description	Values
Autozero	Activates or deactivates the automatic zero correction.	ON* OFF

* Factory setting

5.2.1.4 Auto tare

Navigation:  >  **General configuration** >  **Weighing options** > **Auto tare**

Tare automatically the first weight loaded on the empty weighing pan (zeroed). This function applies to all applications except for **Formulation** and **Back-weighing**.

The following options can be set:

Parameter	Description	Values
Auto tare	Activates or deactivates the auto tare function.	ON OFF*

* Factory setting

5.2.1.5 Auto clear tare

Navigation:  >  **General configuration** >  **Weighing options** > **Auto clear tare**

If the function **Auto clear tare** activated, the current tare is automatically cleared after removing all loaded weight from the weighing pan. This function applies to all applications except for **Formulation** and **Back-weighing**.

The following options can be set:

Parameter	Description	Values
Auto clear tare	Activates or deactivates the auto clear tare function.	ON OFF*

* Factory setting

5.2.1.6 Recall

Navigation:  >  **General configuration** >  **Weighing options** > **Recall**

To retain and recall the last stable weight.

The following options can be set:

Parameter	Description	Values
Recall	Activates or deactivates recall.	ON OFF*

* Factory setting

5.2.2 Publishing

Navigation: ⚙️ > ⚙️ General configuration > 🖨️ Publishing

The available options may vary depending on the peripheral device connected and configured in "Devices". Not every option described is available for the selected peripheral.

Define which work output you want to produce, in which ways and in which format.

See also

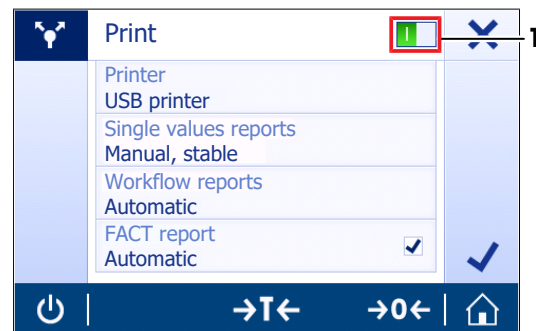
📖 Devices and connectivity ► Page 34

📖 Communication with Peripheral Devices ► Page 67

5.2.2.1 Publishing

5.2.2.1.1 Print

- 1 Tap **Print**.
 - ⇒ The screen **Print** appears.
- 2 If the selection is grayed out, enable changes to the factory settings by tapping the activation button (1) in the upper right corner.
 - ⇒ The button turns green and the settings are now changeable.
- 3 Tap the parameter you want to change, e.g. **Printer**.
- 4 Select the desired value, e.g. **USB printer**.
- 5 Tap ✓ to confirm.
- 6 Tap ⬅️ to return to the previous screen.



The following options can be set:

ON* OFF		Activates or deactivates the option.	
Printer	Defines to which printer the data will be sent. The printer is configured as set out in "Devices and services". Print to file = save data to a USB stick.		Serial printer USB printer Print to file
Single values reports	Sets the behaviour of the printer for single values.		Manual, stable* Manual, all values Automatic, stable Automatic, stable (zero included)
Workflow reports	Sets the workflow for the reports. Automatic = the report is printed at the end of the workflow automatically. Manual = the report is printed at will.		Automatic* Manual
FACT report	Defines whether the FACT report is being printed automatically.		Automatic* OFF

* Factory setting

5.2.2.1.2 Send value

The values can either be transmitted via RS232 (Serial) or USB (USB-B) interface.

For more information about the different interfaces, see [Devices and connectivity ► Page 34].

The following options can be set:

ON* OFF		Activates or deactivates the option.	
Manual, stable*	Send next stable weight at will		

Manual, all values	Send any stable or unstable weight at will
Automatic, stable	Send next stable weight automatically The next stable weight is sent after a minimal deviation, see table relationship between readability and deviation below.
Automatic, continuous	Send any stable or unstable weight automatically

* Factory setting

Stability criteria: Relationship between readability and deviation

Readability	Min. deviation
0.1 mg	0.1 g
0.001 g	1 g
0.01 g	1 g
0.1 g	1 g
1 g	5 g

5.2.2.2 Advanced options

Navigation:  >  **General configuration** >  **Publishing** > **Advanced options**

The following options can be set:

Parameter	Description	Values
Adjustments/Tests – Reports configuration	Defines the Header and Footer for the adjustment and test reports.	Header Footer
Autopublish	Activates or deactivates the publishing time interval. Sets the publishing time interval of single values. Please be aware that exporting a file to a USB memory stick or a FTP server takes some time and we therefore do not recommend to set this value in these cases below 10 seconds.	ON OFF* numerical values (1... 65535 seconds)
Commands options	Activates or deactivates the function Print and tare . The balance will tare automatically after publishing.	ON OFF*

* Factory setting


5.2.3 Devices and connectivity

Navigation:  >  **General configuration** >  **Devices and connectivity**

Add and configure the connections to peripheral devices.

Only one device set up per interface is possible. On creating a new device connection, the existing will be replaced. The last saved configuration of the replaced device will be used as default when the same device type is added again at a later time.

The following devices can be added and configured via the different interfaces.

Parameter	Description	Values
P-20	Connect to a Standard lab printer.	RS232
Printer	Connect to a custom printer.	RS232
Barcode reader	Connect to a barcode reader.	RS232
Host	Establish the Command host service to communicate with the balance via MT-SICS.	RS232 USB Device* Network: LAN/WLAN
Second display	Connect a auxiliary weight display.  Note: If you select Second display make sure that no other device is connected at RS232. Other devices could be damaged because of the voltage.	RS232
PC-Direct	Establishes a service to send the weight value to a PC. E.g., to Microsoft Excel by placing the cursor in the required cell. PC-Direct sends the weight value like a numeric keypad. Please make sure the NumLock is on. Via the USB device interface there is no additional software on the PC needed except a METTLER TOLEDO USB driver.	RS232 USB Device

Configuring devices and connections

- 1 Tap the connection you want to set a new device for, e.g. **RS232**.
⇒ The parameter selection for the corresponding connection appears.
- 2 Select the parameter you want to configure, e.g. **Baudrate**.
⇒ The screen for the corresponding parameter, e.g. **Baudrate** appears.
- 3 Select the desired parameter values.
- 4 Tap ✓ to return to the **RS232** screen.
- 5 If necessary, change the other settings.
- 6 Tap ✓ to return to the **Devices and connectivity** screen.

5.2.3.1 RS232 (Serial)

The following options can be set:

Parameter	Description
Baudrate	600 1200 2400 4800 9600* 19200 38400 57600 115200 (available values are device-specific)
Bit/Parity	8/No* 7/No 7/Mark 7/Space 7/Even 7/Odd
Character set	IBM/DOS ANSI/WIN UTF-8* UTF-8 = is a character encoding capable of encoding all possible characters, or code points, defined by unicode (device-specific).
Command set	MT-SICS* MT-PM Sartorius 22 Sartorius 16 MT-SICS = MT-SICS data transfer format is used. MT-PM = emulates the data format of PM balances. Sartorius 22/Sartorius 16 = emulates the data format of Sartorius balances.
Device type	P-20* P-50 Printer Host PC-Direct Second display Barcode reader
End of line	<CR><LF>* <CR> <LF> <TAB> <CR><LF> = writes in the same column, e.g., in Excel. <TAB> = writes in the same row, e.g., in Excel.
Handshake	Xon/Xoff* RTS/CTS None
Stop bits	1 bit* 2 bits

* Factory setting

5.2.3.2 USB Device (USB B)

The following options can be set:

Parameter	Description
Character set	ANSI/WIN UTF-8 Cannot be changed (device-specific).
Device type	Host* PC-Direct
Command set	MT-SICS* MT-PM Sartorius 22 Sartorius 16 MT-SICS = MT-SICS data transfer format is used. MT-PM = emulates the data format of PM balances. Sartorius 22/Sartorius 16 = emulates the data format of Sartorius balances.
End of line	<CR><LF>* <CR> <LF> <TAB> <CR><LF> = writes in the same column, e.g., in Excel. <TAB> = writes in the same row, e.g., in Excel.

* Factory setting

5.2.3.3 USB Host (USB A)

The following options can be set:

Parameter	Description
Device type	not selectable
Character set	IBM/DOS ANSI/WIN UTF-8* UTF-8 = is a character encoding capable of encoding all possible characters, or code points, defined by unicode (device-specific).
End of line	<CR><LF>* <CR> <LF>

* Factory setting

5.2.4 System settings

Navigation:  >  **General configuration** >  **System settings**

This section describes the procedure for adapting the balance to suit specific requirements.

The following options can be set:

Parameter	Description	Values
Balance identification	Defines a balance identification. By default the balance identification consists of the balance model and the serial number.	Values can be defined individually.
Sleep mode	Activates or deactivates the screen saver.	ON* OFF
	Determines when the screen saver appears with date and time. Tap on the screen to exit the screen saver.	After 30 seconds After 1 minute After 2 minutes After 5 minutes After 10 minutes*
Backlight OFF	Activates or deactivates the display turns off.	ON OFF*
	Determines when the display turns off. Tap the screen to end Backlight OFF mode.	After 30 seconds After 1 minute After 2 minutes After 5 minutes After 10 minutes
Quick wake up	Terminates Sleep mode and/or Backlight OFF . By placing the sample on the weighing pan, the Sleep mode and/or Backlight OFF will be terminated.	ON* OFF
Service due notification	Activates or deactivates the function Service due notification .	ON* OFF

* Factory setting

If **Sleep mode** and **Backlight OFF** have the same value, the screen saver briefly appears before the backlight switches off.

System and data management

The following options can be set:

Parameter	Description
Touch screen adjustment	The balance performs a screen adjustment.
Reset balance...	Resets the balance to factory settings.
Backup and restore balance settings...	Generates a backup of the current balance settings (excluding MinWeigh, service due notification and ISO-Log). To execute a backup, an external storage device (USB memory stick, FAT32) must be connected to the USB host (type A). Additionally, if an external storage device (USB memory stick, FAT32) is attached with a back-up file, it can be restored. We do not recommend to back-up/restore balance settings between approved and non-approved balance models.



Note

By resetting the balance, any changes to the general settings and contextual settings that have been made along with any temporary collected data, e.g., paused applications or statistics will be lost.

5.2.5 Access protection

Navigation:  >  **General configuration and data** >  **Access protection**

The function **Access protection** enables certain functionalities of the balance to be protected by a numerical passcode.

The following options can be set:

Parameter	Description	Values
Applications	Activates or deactivates application protection.	ON OFF*
Adjustments and tests	Activates or deactivates the protection of the adjustments and tests.	ON OFF*
Settings	Activates or deactivates the protection of all settings.	ON OFF*
Passcode	Defines the passcode by the user.	1...9 (1-12 digits)


* Factory setting

User passcode

The user passcode can be defined by the user. The default value is 12345678. The length of the configurable user passcode is restricted to 12 digits.

Passcode and access options are not affected by a balance reset.

What if you forget the password?

If you forget or lose the password, please ask the user with the administrator rights to provide you a new password. If also the administrator forgets or loses its password, please contact a METTLER TOLEDO representative. For more information please tap on the "?" icon on the **Login – User** screen of the administrator and generate an email with the relevant information by tapping on the  on the right.

5.2.6 ISO-Log


Navigation:  >  **General configuration** >  **ISO-Log**

The ISO-Log provides detailed information about adjustments already performed, the intensity of use and settings. The ISO-log can store up to 999 events until the oldest one is overwritten by the newest.

The following options can be set:

Parameter	Description
ISO-Log – Adjustments	Displays detailed information about adjustments already performed.
ISO-Log – Balance	Displays detailed information about the balance history.
ISO-Log – Settings and status	Displays detailed information about setting changes.

6 Application Settings

Each application can be defined manually via its application settings. Select the application and tap the application settings symbol in the upper left corner to define the application, e.g., % in the application **Percent weighing**.

The application settings can only be changed if no measurement is in progress.

The available options may differ depending on the application. Most applications have the following options:

-  **Main configuration**
-  **Reports configuration**
-  **Statistics**

6.1 Main configuration

Navigation:  >  **Activities - Weighing applications** > 

In this section, the current application individually be defined individually. The available options may vary depending on the application.

More information about the available options can be found in the activities section.

6.2 Reports configuration

Navigation:  >  **Activities - Weighing applications** > 

In this section, the report content can be configured. By default only the weighing value and the weight unit is published. Any additional information can be configured by the user.

The available options are model and country-specific and may vary depending on the application. The report configuration is valid independently of the report type. As far as possible the same content is published on a XML, PDF, CSV or TXT file or when printed on the strip printer. However, each report type has certain limitations.

6.2.1 Working with IDs

Identifications (IDs) contain descriptive text for measurements, enabling samples to be easily allocated to specific tasks or customers. This feature defines identifications in order to be able comment on measurements, such as company ID, batch ID or sample ID.

Identifications must be defined under the application settings in **Reports configuration**. Usage and definition of the ID differ depending on the application for which the ID is used.


Identification dialog screen

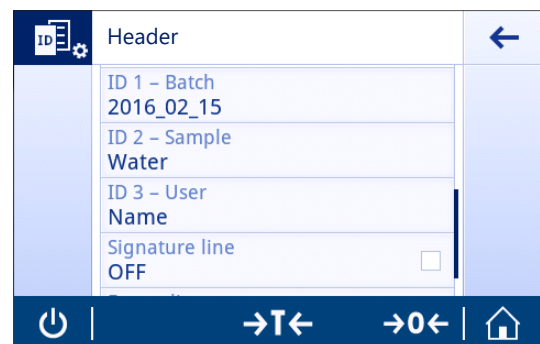
The Identification dialog screen can slightly differ depending on the application in which the ID is used. The dialog screen always consists of two parts:

- The table with the ID definitions on the upper part of the screen.
- The **Workflow options** on the lower part of the dialog screen.

6.2.2 Defining an ID

The maximum length of an ID is 12 characters.

- 1 Open an application, e. g., **Weighing**.
- 2 Tap the application settings symbol in the upper left corner.
- 3 Tap  **Reports configuration**.
- 4 Tap e.g., **Header**.
- 5 Tap **ID 1**.
 - ⇒ The input dialog **ID 1** appears. The input dialog is inactive.
- 6 Activate **ID 1** with the switch in the title bar.
 - ⇒ The input dialog **ID 1** is activated.
- 7 Define **ID 1 - Label**.
- 8 Tap ✓ to confirm.
- 9 Define **ID 1 - Value**.
- 10 Tap ✓ to confirm.
 - ⇒ The screen **ID 1** shows the values for **ID - Label** and **ID 1 - Value**.
- 11 Tap ✓ to accept the defined values.
 - ⇒ The screen **Header Reports configuration** appears the defined ID.
- 12 Tap ✓ to confirm.
 - ⇒ The screen **Header Reports configuration** appears.
- 13 Tap ✓ to confirm.



Header	
ID 1 - Batch	2016_02_15
ID 2 - Sample	Water
ID 3 - User	Name
Signature line	<input type="checkbox"/> OFF

6.2.3 Workflow handling options

The workflow handling options differ depending on the application in which they are used. The following functions are available:

- **Autoincrement**
- **Input prompt**

Autoincrement

The function **Autoincrement** specifies that the last part of the ID is incremented with each use of that ID. There are two basic functions depending on how the ID is defined:

- If there is no counter in the ID, the system automatically adds a counter to the ID starting with 1 (e.g., the ID **Process** will be **Process1** in the next use).
- If a counter is part of the ID, the system automatically increments the ID starting at that counter (e.g., the ID **Process 1** will be **Process 2** in the next use).
- The counter must be set at the end of the ID, otherwise the system doesn't recognize the number as a counter (e.g. in **567Apple** the system doesn't recognize **567** as a counter).
- If the ID has no counter and a maximum length of 12 characters, the last few characters will be overwritten by the counter.

Assign to sample

If the option **Assign to sample** is activated, the ID will be used for each sample.

Input prompt

The **Input prompt** function can be used for every ID. If **Input prompt** is activated, the ID will be prompted on the display before it is used. The user can decide whether to use the default value that has been defined with the ID or define an individual value. The value can either be defined with the keyboard on the touch screen, by reading in the information with a barcode reader or by attaching an external keyboard to the balance. For more information please refer to **Devices and services**.

6.2.4 Settings

Header

The following options can be set:

Parameter	Description	Values
Date, time	Defines if the date and time appears on the report.	ON OFF*
Balance type	Defines if the balance type appears on the report.	ON OFF*
Serial number (SNR)	Defines if the serial number appears on the report.	ON OFF*
Balance ID	Defines if the balance ID ** appears on the report. ** Balance identification can be defined in the system settings.	ON OFF*
ID 1	Defines if ID 1 appears on the report.	ON OFF*
ID 2	Defines if ID 2 appears on the report.	ON OFF*
ID 3	Defines if ID 3 appears on the report.	ON OFF*
Signature line	Defines if the signature line appears on the report.	ON OFF*
Empty lines	Defines the number of empty lines on the report (1...99).	ON OFF*

* Factory setting

Sample

The following options can be set:

Parameter	Description	Values
ID 4	Defines if ID 4 (Sample ID) appears on the report.	ON OFF*
Gross/Tare	Defines if Gross/Tare appears on the report.	ON OFF*
Additional unit	Defines if an additional unit appears on the report.	ON OFF*

* Factory setting

Footer

The following options can be set:

Parameter	Description	Values
Date, time	Defines if date and time is appears on the report.	ON OFF*
Signature line	Defines if the signature line appears on the report.	ON OFF*
Empty lines	Defines the number of empty lines on the report (1...99).	ON OFF*

* Factory setting

6.3 Statistics

Navigation:  >  **Activities - Weighing applications** > 

The **Statistics** function generates statistics for a series of results. The **Statistics** function is not available for the applications **Totaling** and **Formulation**.

The **Automatic** setting is used to automatically transfer the result to the statistics. If using the **Manual** setting, the **+** key must be pressed to transfer the result.

If there are more than 3 values from a series in the statistics, the result is also displayed as a Gaussian curve.

If statistics are activated, the following options are available during the weighing process:

- Finish and publish
- Pause
- View result
- Discard data

Statistics configuration

The following options can be set:




Parameter	Description	Values
Acceptance range	Defines the acceptable deviation in relation to the average value.	1%...100% (30%*)
Accepting mode	Defines if a weight sample is added automatically to the result.	Automatic Manual*

* Factory setting

Stability criteria: Relationship between readability and deviation



Readability	Min. deviation
0.1 mg	0.1 g
0.001 g	1 g
0.01 g	1 g
0.1 g	1 g
1 g	5 g

Defining statistics



- 1 Open an application, e.g., **Weighing**.
- 2 Tap the main configuration symbol of the application, e.g., .
⇒ The main configuration screen appears.
- 3 Tap .
⇒ The screen **Statistics** appears.
- 4 Activate the **Statistics**.
- 5 Define the available options.
- 6 Tap  to confirm.

Discard value

If a weighing value was incorrect, it can be discarded from the result. Discard is only possible up to the last time the balance was tared.



- 1 Tap .
⇒ The dialog screen **Confirm discard** appears. An overview with all values within the current weighing process is displayed.
- 2 Tap  to discard the last value from the result.
⇒ The incorrect value has been deleted. The weighing process can be continued.

Terminate the application





- 1 Tap .
 - ⇒ A dialog screen appears.
- 2 Tap  **Finish and publish**.
 - ⇒ The results are published according to the publishing configurations and the data are deleted.
 - ⇒ The application home screen appears.

Discard

All results are deleted.

- 1 Tap .
 - ⇒ A dialog screen appears.
- 2 Tap  **Discard**.
 - ⇒ All data are deleted.
 - ⇒ The application home screen appears.

View result

- 1 Tap .
 - ⇒ A dialog screen appears.
- 2 Tap  **View result**.
 - ⇒ The results are now displayed.
- 3 Tap  to publish the results according to the configurations.
- 4 Tap  to return to the previous screen.

7 Activities

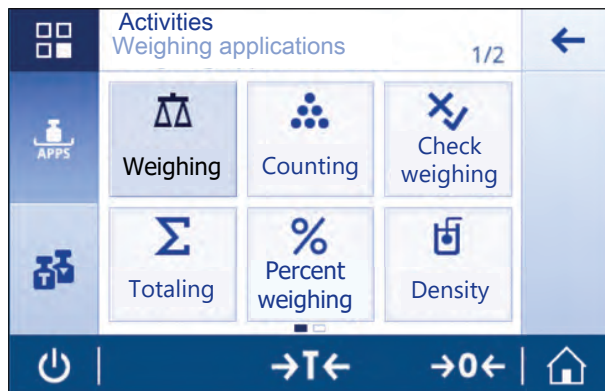
Navigation: 

The **Activities** section includes the following two sub-sections:

- **Activities - Weighing applications**
- **Activities - Adjustments and tests**








7.1 Activities - Weighing applications

Navigation:  >  **Activities - Weighing applications**



There is not enough space to show all the weighing applications on one screen. Scroll horizontally to reach the other applications on the second page.

Activities - Weighing applications includes the following applications:

-  **Weighing**, see [Weighing ▶ Page 46] and [Performing a simple weighing ▶ Page 23]
-  **Counting**, see [Counting ▶ Page 48]
-  **Check weighing**, see [Check weighing ▶ Page 53]
-  **Totaling**, see [Totaling ▶ Page 56]
-  **Percent weighing**, see [Percent weighing ▶ Page 59]
-  **Density**, see [Density ▶ Page 60]
-  **Factor weighing**, see [Factor weighing ▶ Page 62]

7.1.1 Weighing

Navigation

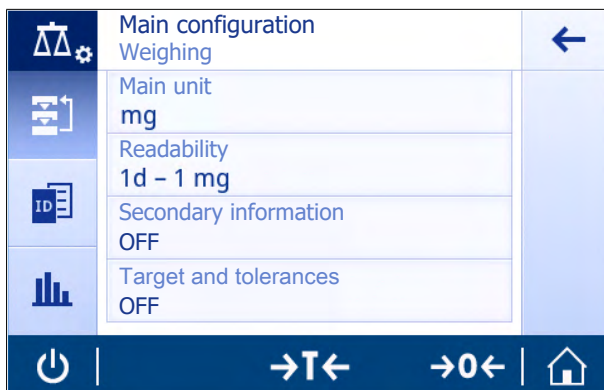
☐ Activities >  Activities - Weighing applications >  Activities - Weighing applications

The **Weighing** application allows the user to perform simple weighing operations.


For more information about the basic weighing functions, **see** Performing a simple weighing.

The statistics function can be activated; information on this topic can be found in [Statistics ► Page 43].

Weighing – Main configuration



Setup the weighing application

- 1 Tap .
 - ⇒ The screen **Weighing – Main configuration** appears.
- 2 Tap e.g. **Main unit**.
 - ⇒ The screen **Main unit** appears.
- 3 Select the desired unit by tapping it.
- 4 Tap ✓ to confirm.
 - ⇒ The screen **Weighing – Main configuration** appears.
- 5 Tap ✓ to confirm the configuration.

Parameter	Description	Values
Main unit	Sets the main unit of the weighing process. The available units are model- and country-specific.	g* kg mg µg ct N lb oz ozt GN dwt mom msg tih tils tit tcl tola baht lb:oz
Secondary information	Activates or deactivates the secondary information displayed on screen. Additional unit* Selects the secondary information displayed on screen. The available units are model- and country-specific. Current tare Current tare weight.	ON OFF*
Readability	Defines the readability (d) of the weighing process. The available readabilities are model-specific.	1d - 0.0001 g* 2d - 0.0002 g 5d - 0.0005 g 10d - 0.001 g 100d - 0.01 g 1000d - 0.1 g

Target and tolerances	<p>Defines the target weight and tolerances.</p> <p>Target weight Predefines a target weight. The value can be selected manually or by weighing.</p> <p>Upper tolerance Defines the upper tolerance.</p> <p>Lower tolerance Defines the lower tolerance.</p> <p>If the value for Target weight, Upper tolerance or Lower tolerance has been defined, the option title Target and tolerances will be replaced by the defined values.</p>	<p>ON OFF*</p> <p>Numerical value (depending on the balance type)</p>
-----------------------	--	---

* Factory setting

7.1.2 Counting

Navigation: **Activities** > **Activities - Weighing applications** > **Counting**



The **Counting** application determines a specific number of pieces based on a predetermined reference piece weight.

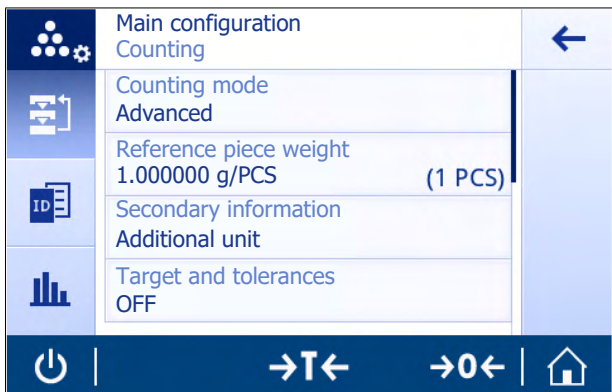
There are two counting modes available: **Advanced** and **Standard**. With the additional features of **Advanced** mode, the entire process is more comfortable and more secure due to an automatic workflow. The mode can be changed in the section **Counting – Main configuration**. Default mode: **Advanced**.

The statistics function can be activated; information on this topic can be found in [Statistics ► Page 43].

Legal-for-trade

A fixed minimum reference piece number of 10 and inactive reference weight options are predetermined for approved balances for selected countries.

7.1.2.1 Counting - Main configuration



The following options can be set:

Parameter	Description	Values
Counting mode	Select the Counting mode .	Advanced* Standard
Reference piece weight	Sets the number and weight of the reference piece(s).	1...999 (10*)

Secondary information	<p>Activates or deactivates the secondary information displayed on screen.</p> <p>Additional unit* Selects the secondary information displayed on screen. The available units are model- and country-specific.</p> <p>Current tare Current tare weight.</p>	ON* OFF
Target and tolerances	<p>Defines the target weight and tolerances.</p> <p>Target weight Predefines a target weight. The value can be selected manually or by weighing.</p> <p>Upper tolerance Defines the upper tolerance.</p> <p>Lower tolerance Defines the lower tolerance.</p> <p>If the value for Target weight, Upper tolerance or Lower tolerance has been defined, the option title Target and tolerances will be replaced by the defined values.</p>	<p>ON OFF*</p> <p>Numerical value (depending on the balance type)</p>

* Factory setting

Advanced mode options

The following options can be set:

Parameter	Description	Values
Reference mode	<p>Selects the Reference mode.</p> <p>Automatic The next stable weight is automatically accepted as a reference weight according to the defined piece number.</p> <p>Manual The reference can be defined manually.</p>	Automatic* Manual
Auto clear reference	<p>Activates or deactivates the Auto clear reference.</p> <p>The current value of the option Reference piece weight will be automatically deleted after zeroing or removing all loaded weights from the weighing pan.</p>	ON OFF*
Reference optimization	<p>Activates or deactivates the Reference optimization.</p> <p>The current reference will be continuously optimized during operation by accepting additional pieces automatically or manually.</p>	ON OFF*
Reference check	<p>Activates or deactivates the Reference check.</p>	ON OFF*
Accuracy information	<p>Activates or deactivates the Accuracy information.</p> <p>Counting accuracy can be shown in percent (default mode) or piece(s).</p>	ON OFF*

* Factory setting

7.1.2.2 Defining reference piece weight in standard mode

To define the **Reference piece weight**, the **Reference piece number** and **Reference weight** must be successively defined. The system will automatically navigate from one option to the other.

Defining reference piece number

The reference piece number must be a number between 1 and 999.

- Counting mode **Advanced** is activated.
- 1 Tap **1 piece** in the work title bar.
 - ⇒ A dialog screen appears.
- 2 Tap **x** to delete the value.
- 3 Enter the number of reference pieces.
- 4 Tap **✓** to confirm.
 - ⇒ The defined value for the option **Reference piece number** appears in the work title bar.




Defining the reference weight

There are two ways to define the reference weight. The reference weight can be defined manually by entering the value or weighing the reference weight.

Defining reference weight manually

- 1 Tap **x** to delete the value.
- 2 Enter the new reference weight.
- 3 Tap **✓** to confirm.
 - ⇒ The reference piece weight has been defined.
- 4 Tap **✓** to confirm.

Defining the reference weight by weighing

- 1 Tap .
⇒ A dialog screen appears.
- 2 Place the reference weight on the weighing pan.
- 3 Tap ✓ to confirm.
⇒ The screen **Reference weight** appears.
- 4 Tap ✓ to confirm.
⇒ The screen **Counting – Main configuration** appears.
- 5 Tap ✓ to confirm the configuration.

7.1.2.3 Defining reference piece weight in advanced mode

To define the **Reference piece weight**, the **Reference piece number** and **Reference weight** can be defined directly via the shortcuts.

Defining the reference piece number

The reference piece number must be a number between 1 and 999.

- Counting mode **Advanced** is activated.
- 1 Tap **1 piece** in the work title bar.
⇒ A dialog screen appears.
 - 2 Tap **Piece number** in the work title bar.
 - 3 Tap ✕ to delete the value.
 - 4 Enter the number of reference pieces.
 - 5 Tap ✓ to confirm.
⇒ The defined value for the option **Reference piece number** appears in the work title bar.



Defining the reference piece weight manually

- 1 Tap **Piece weight** in the work title bar.
⇒ The screen **Reference piece weight** appears.
- 2 Tap ✕ to delete the value.
- 3 Enter the new value.
- 4 Tap ✓ to confirm.
⇒ The defined value for the option **Reference piece weight** appears in the work title bar.

Defining reference piece weight by weighing

If no reference weight has been defined yet, the work title bar shows **Piece weight Not defined**.

- 1 Place the reference sample weight on the weighing pan.
- 2 Depending on whether the option **Reference mode** is set to **Automatic (Default)** or **Manual**, the value will be automatically accepted or must be confirmed.
⇒ The balance returns to the application main screen and shows the defined value for the option **Reference piece weight** in the work title bar.

Once the reference weight has been defined in **Advanced** mode, it appears on the right side of the work title bar. The reference weight can be changed in **Main configuration** under **Reference piece weight** or using the shortcut on the left side of the work title bar.

Counting with reference weight check

The reference weight check ensures that the reference weight is high enough for the resulting counting accuracy to fit the customer process tolerance. Activate a reference weight check and define the process tolerance in percent. The percentage factor range is 0.01 - 30.00%. The higher the factor, the smaller the required minimum reference weight. Factory setting: 2%. The minimum reference weight is equal to d / factor .

Example

$d = 0.1 \text{ g}$

Factor = 20%

Minimum reference weight = $0.1 \text{ g} / 20\% = 0.5 \text{ g}$

If the reference calculation is activated manually or automatically, the minimum reference weight is checked to ensure the desired accuracy. If it is not sufficient, the user is prompted to add the number of additional parts needed. The number of additional parts needed is reduced to zero, after which the user adds additional parts. At zero, the reference calculation is activated automatically. If too many parts are added, the user is prompted to remove the number of parts until zero is reached.

7.1.3 Check weighing

Navigation:  **Activities** >  **Activities - Weighing applications** >  **Check weighing**

The **Check weighing** application allows the user to check the deviation of a sample weight within a tolerance limit against a reference target weight. The target weight can be determined manually or by weighing; the tolerance limit must be defined manually.

The statistics function can be activated; information on this topic can be found in [Statistics ► Page 43].

7.1.3.1 Check Weighing - Main configurations

Legal-for-trade

For approved balances, this menu item has fixed settings and cannot be changed.

The following options can be set:

Parameter	Description	Values
Target and tolerances	Defines the target weight and tolerances. Target weight Predefines a target weight. The value can be selected manually or by weighing. Upper tolerance Defines the upper tolerance. Lower tolerance Defines the lower tolerance. If the value for Target weight , Upper tolerance or Lower tolerance has been defined, the option title Target and tolerances will be replaced by the defined values.	Target weight Upper tolerance Lower tolerance Numerical value (depending on the balance type)
Tolerance threshold	Defines the tolerance threshold. Values below the defined threshold are not checked.	1%...100% (1%*)
Within tolerance beeps	Activates or deactivates the acoustic signal. Gives an acoustic signal when the result is within tolerance.	ON OFF*
Main unit	Sets the main unit of the weighing process. The available units are model- and country-specific.	g* kg mg µg ct N lb oz ozt GN dwt mom msg tth tfs tft tcl tola baht lb:oz
Readability	Defines the readability (d) of the weighing process. The available readabilities are model-specific.	1d - 0.0001 g* 2d - 0.0002 g 5d - 0.0005 g 10d - 0.001 g 100d - 0.01 g 1000d - 0.1 g





* Factory setting

7.1.3.2 Before performing check weighing






Before performing a check weighing operation, the following options can be set:

- **Target weight**
- **Upper tolerance limit**
- **Lower tolerance limit**
- **Tolerance threshold**







Defining the target weight manually by entering the nominal weight

- 1 Tap .
⇒ The screen **Check weighing - Main configuration** appears.
- 2 Tap **Target and tolerances**.
⇒ The dialog screen **Target weight in g** appears.
- 3 Tap  to delete the value.
- 4 Enter the value of the target weight.
- 5 Tap  to confirm.
⇒ The screen **Check weighing - Main configuration** appears.
- 6 Tap  to confirm, and return to the application screen.

Defining the target weight by weighing





- 1 Tap .
⇒ The screen **Check weighing - Main configuration** appears.
- 2 Tap **Target and tolerances**.
⇒ The dialog screen **Target weight in g** appears.
- 3 Tap .
⇒ The dialog screen **Target weight in g** appears.
- 4 Place the reference weight on the weighing pan.
- 5 Tap  to confirm.
⇒ The dialog screen **Target weight in g** appears.
- 6 Tap  to confirm.
⇒ The screen **Check weighing - Main configuration** appears.
- 7 Tap  to confirm, and return to the application screen.

Defining the lower and upper limits manually by entering a percentage value or weight

- 1 Tap .
⇒ The screen **Check weighing - Main configuration** appears.
- 2 Tap **Target and tolerances**.
⇒ The dialog screen **Target weight in g** appears.
- 3 Tap  **Upper tolerance limit** or tap  **Lower tolerance limit**.
⇒ The dialog screen **Upper tolerance in g** or **Lower tolerance in g** appears.
- 4 Activate the option using the switch at the upper right.
- 5 Tap  to delete the value.
- 6 Enter the tolerance limit.
- 7 Tap  to confirm.
⇒ The screen **Check weighing - Main configuration** appears.
- 8 Tap  to confirm, and return to the application screen.

Defining tolerance threshold

With the option **Tolerance threshold** a value limit can be set using the **Tolerance threshold** option. If the value of the check weight is below the defined threshold, it will not be checked.


- 1 Tap .
⇒ The screen **Check weighing - Main configuration** appears.
- 2 Tap **Tolerance threshold**.
⇒ The dialog screen **Tolerance threshold in %** appears.
- 3 Activate the option using the switch at the upper right.
- 4 Tap  to delete the value.
- 5 Enter the value for the **Tolerance threshold**.
- 6 Tap  to confirm.
⇒ The screen **Check weighing - Main configuration** appears.
- 7 Tap  to confirm, and return to the application screen.

The **Tolerance threshold** option always refers to the lower tolerance limit.


7.1.3.3 Performing check weighing

After defining the target weight and tolerance limits, the **Check weighing** application can be performed. The color weighing-in aid bar at the top bar indicates whether the weight sample is within the defined tolerances.

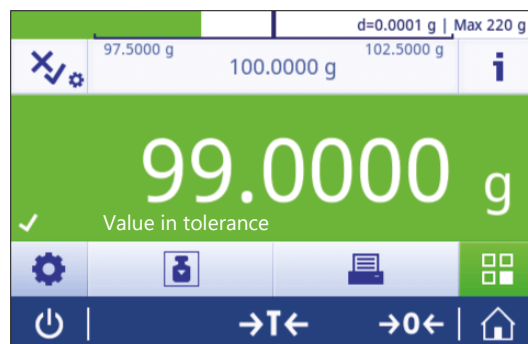
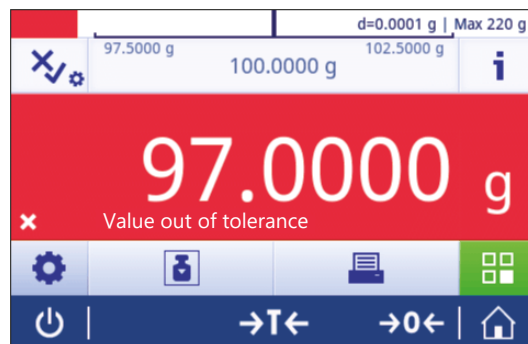
Example: the defined target weight is 100.0000 g and the tolerance limit is $\pm 2.5\%$. The sample weight is 97.0000 g.

- Place the sample weight on the weighing pan.
⇒ The weight is stable and the unstability symbol  disappears.
⇒ The value is out of tolerance, and the weighing-in aid bar and weighing value field are red.

Example: the defined target weight is still 100.0000 g and the tolerance limit is $\pm 2.5\%$. The sample weight is 99.0000 g.

- Place the sample weight on the weighing pan.
⇒ The weight is stable and the unstability symbol  disappears.
⇒ The value is within the tolerance limit, and the weighing-in aid bar and weighing value field are green.

If the weight is below a defined tolerance threshold, the background color of the screen does not change.



7.1.4 Totaling

Navigation:  Activities >  Activities - Weighing applications >  Totaling



The **Totaling** application allows the user to weigh different samples, add their weight values and totalize them. The application allows the user to:

- Weigh-in (add and store) up to 999 individual component weights without tare container and display the total.

Totaling – Main configuration

The following options can be set:

Parameter	Description	Values
Accepting mode	Defines if a weight sample is added automatically to the result.	Automatic Manual*
Main unit	Sets the main unit of the weighing process. The available units are model- and country-specific.	g* kg mg µg ct N lb oz ozt GN dwt mom msg tih tils tlt tcl tola baht lb:oz
Readability	Defines the readability (d) of the weighing process. The available readabilities are model-specific.	1d - 0.0001 g* 2d - 0.0002 g 5d - 0.0005 g 10d - 0.001 g 100d - 0.01 g 1000d - 0.1 g

* Factory setting

Stability criteria: Relationship between readability and deviation

Readability	Min. deviation
0.1 mg	0.1 g
0.001 g	1 g
0.01 g	1 g
0.1 g	1 g
1 g	5 g

Performing totaling

- 1 Press **→0←** to zero the balance.
- 2 If using a container, place container on the weighing pan and press **→T←** to tare the balance.
- 3 Place the first sample on the weighing pan.
- 4 Wait until the unstability symbol **○** disappears.
⇒ When the balance is stable, the weighing value becomes dark blue.
- 5 Tap **+** to accept the weight and start the procedure.
- 6 Place the next sample.
- 7 Tap **+** to accept the second sample weight.
⇒ The work title bar shows the number of samples (2 samples) and the total weight of the samples, e.g.,
 $\Sigma = 30.0000 \text{ g}$.

The following options are available during the weighing process:

- Finish and publish
- Pause
- View result
- Discard

Discard value

If a weighing value was incorrect, it can be discarded from the result. Discard is only possible up to the last time the balance was tared.

- 1 Tap **—**.
⇒ The dialog screen **Confirm discard** appears. An overview with all values within the current weighing process is displayed.
- 2 Tap **✓** to discard the last value from the result.
⇒ The incorrect value has been deleted. The weighing process can be continued.

Terminate the application

- 1 Tap **■**.
⇒ A dialog screen appears.
- 2 Tap **✓ Finish and publish**.
⇒ The results are published according to the publishing configurations and the data are deleted.
⇒ The application home screen appears.

Pause the application


- 1 Tap **■**.
⇒ A dialog screen appears.
- 2 Tap **|| Pause**.
⇒ The application is paused and another application can be used in the meantime.
⇒ The application home screen appears.
- 3 Open the application again.
- 4 Tap **▶**.
⇒ The process can be continued.

View result

- 1 Tap **■**.
⇒ A dialog screen appears.
- 2 Tap **📄 View result**.
⇒ The results are now displayed.
- 3 Tap **📄** to publish the results according to the configurations.
- 4 Tap **←** to return to the previous screen.

Discard

All results are deleted.

- 1 Tap .
- ⇒ A dialog screen appears.
- 2 Tap **×** **Discard**.
- ⇒ All data are deleted.
- ⇒ The application home screen appears.

7.1.5 Percent weighing

Navigation:  **Activities** >  **Activities - Weighing applications** > **% Percent weighing**

Percent weighing allows a sample weight to be checked as a percentage of a reference target weight. The statistics function can be activated; information on this topic can be found in [Statistics ► Page 43].

Percent weighing – Main configuration

The following options can be set:






Parameter	Description	Values
Reference weight	Defines the reference weight manually or by weighing.	Available range is model-specific.
Secondary information	Activates or deactivates the secondary information displayed on screen. Additional unit* Selects the secondary information displayed on screen. The available units are model- and country-specific. Current tare Current tare weight.	ON* OFF

* Factory setting




Defining the reference weight

There are two ways to define the reference weight. The reference weight can be defined manually by entering the value or weighing the reference weight.

Defining the reference weight by weighing

- 1 Tap **%**.
⇒ The screen **Percent weighing – Main configuration** appears.
- 2 Tap **Reference weight**.
⇒ The screen **Reference weight** appears.
- 3 Tap .
- 4 Press **→0←** to zero the balance.
- 5 Place the reference weight on the weighing pan.
- 6 Tap  to confirm.
⇒ The screen **Reference weight** appears.
- 7 Tap  to confirm.
- 8 Tap  to return to the application screen.

Defining the reference weight manually

- 1 Tap **%**.
⇒ The screen **Percent weighing – Main configuration** appears.
- 2 Tap **Reference weight**.
⇒ The screen **Reference weight** appears.
- 3 Tap **x** to delete the value.
- 4 Enter the value of the reference weight and confirm with .
- 5 Tap  to return to the application screen.

7.1.6 Density

Navigation:  **Activities** >  **Activities - Weighing applications** >  **Density**

Density allows the density of solid bodies and liquids to be determined.

The density is determined via the Archimedes principle, according to which a body immersed in a fluid undergoes an apparent loss in weight which is equal to the weight of the fluid it displaces.

To determine the density of solid bodies, we recommend using the optional density kit, which contains all attachments and aids needed for convenient and precise density determination. To determine the density of liquids, a sinker is also required. This can be obtained from your METTLER TOLEDO dealer.

The statistics function can be activated; information on this topic can be found in [Statistics ► Page 43].






Density – Main configuration

The following options can be set:


Parameter	Description	Values
Method	Depending if the weight type is solid or liquid.	Solid* Liquid
Auxiliary liquid	Select the auxiliary liquid.	H2O* Ethanol Free...
Sinker volume	This option is only available when Liquid is active.	(0.1...500.0 cm ³)
Result decimals	Defines the number of decimal places density in g/cm ³ .	1 2 3* 4 (depending on the balance type)
Main unit	Sets the main unit of the weighing process. The available units are model- and country-specific.	g* kg mg µg ct N lb oz oz† GN dwt mom msg tll tlls tllt tcl tola baht lb:oz

* Factory setting



Determination of density of solids

- 1 Tap  .
- ⇒ The screen **Density – Main configuration** appears.
- 2 Tap **Method**.
- ⇒ When **Solid** has been activated (default value), the **Auxiliary liquid** appears in the list.
- 3 Tap **Auxiliary liquid**.
- ⇒ The screen **Auxiliary liquid** appears.
- 4 Define the **Auxiliary liquid** that is used. Select between **H2O** for distilled water, **Ethanol** or **Free...** for a freely definable auxiliary liquid.
- 5 Tap  to confirm.
- ⇒ The selected **Auxiliary liquid** defines the next steps:
- ⇒ The dialog screen **Temperature in °C** appears.
- 6 Enter the **Temperature in °C** for **Ethanol** and **H2O**.
- 7 **Auxiliary liquid name** and **Density in g/cm³** must be defined for the option **Free....**
- 8 Tap  to confirm.
- ⇒ The screen **Density – Main configuration** appears.
- 9 Tap  to return to the application screen.
- ⇒ The balance is prepared for determining the density of solids.


Determining the density for solids

- The balance has been configured to determine the density of solids.
- 1 Tap ► to start the process.
 - ⇒ The dialog screen **Sample weight in air** appears.
- 2 Place the solid mass on the weighing pan.
- 3 Tap ✓ to confirm.
 - ⇒ The dialog screen **Sample weight in liquid** appears.
- 4 Immerse solid in the liquid.
- 5 Tap ✓ to confirm.
 - ⇒ The results are now displayed.
- 6 Tap  to publish the results according to the configurations.
- 7 Tap ✓ to return to the application screen.

Determination of density for liquids

- 1 Tap  .
 - ⇒ The screen **Density – Main configuration** appears.
- 2 Tap **Method**.
- 3 Tap **Liquid**.
- 4 Tap ✓ to confirm.
 - ⇒ When **Liquid** has been activated, **Sinker volume** appears in the list.
- 5 Tap **Sinker volume**.
 - ⇒ The dialog screen **Sinker volume in cm³** appears.
- 6 Tap ✕ to delete the value.
- 7 Enter the volume of the sinker.
- 8 Tap ✓ to confirm.
 - ⇒ The screen **Density – Main configuration** appears.
- 9 Tap ✓ to return to the application screen.

Determining the density of liquids

- The balance has been configured to determine the density of liquids.
- 1 Tap ► to start the process.
 - ⇒ The dialog screen **Sinker in air** appears.
- 2 Place the sinker on the weighing pan.
- 3 Tap ✓ to confirm.
 - ⇒ The dialog screen **Sinker in liquid** appears.
- 4 Immerse the sinker.
- 5 Tap ✓ to confirm.
 - ⇒ The results are now displayed.
- 6 Tap  to publish the results according to the configurations.
- 7 Tap ✓ to return to the application screen.

7.1.7 Factor weighing

Navigation: **Activities** > **Activities - Weighing applications** > **Factor weighing**

The application **Factor weighing** multiplies or divides a pre-defined factor by the measured weight value (in grams) and calculates it to a predefined number of decimal places.

The permitted range for the steps depends on the pre-defined factor and the resolution of the balance.

The statistics function can be activated; information on this topic can be found in [Statistics ► Page 43].

Factor weighing – Main configuration

The following options can be set:

Parameter	Description	Values
Factor, step	Defines the factor and the step.	Factor Step
Secondary information	<p>Activates or deactivates the secondary information displayed on screen.</p> <p>Additional unit* Selects the secondary information displayed on screen. The available units are model- and country-specific.</p> <p>Current tare Current tare weight.</p>	ON* OFF
Target and tolerances	<p>Defines the target weight and tolerances.</p> <p>Target weight Predefines a target weight. The value can be selected manually or by weighing.</p> <p>Upper tolerance Defines the upper tolerance.</p> <p>Lower tolerance Defines the lower tolerance.</p> <p>If the value for Target weight, Upper tolerance or Lower tolerance has been defined, the option title Target and tolerances will be replaced by the defined values.</p>	<p>ON OFF*</p> <p>Numerical value (depending on the balance type)</p>

* Factory setting

Defining factor and step







- 1 Tap .
 - ⇒ The screen **Factor weighing – Main configuration** appears.
- 2 Tap **Factor, step**.
 - ⇒ The dialog screen **Factor – Multiplication** appears.
- 3 Tap to delete the value.
- 4 Define **Factor**.
- 5 Tap to change the operation from **Multiplication** to **Division** or vice versa.
- 6 Tap .
- 7 Tap .
 - ⇒ The dialog screen **Step** appears.
- 8 Define **Step**.
- 9 Tap to confirm.
 - ⇒ The screen **Factor weighing – Main configuration** appears.
- 10 Tap to return to the application screen.

7.2 Activities - Adjustments and tests

Navigation:  > 

To obtain accurate weighing results, the balance must be adjusted to match the gravitational acceleration at its location and depending on the ambient conditions. After reaching the operation temperature, adjusting is necessary.

Activities - Adjustments and tests consists of the following elements:

-  **FACT**, see [Fully automatic adjustment (FACT) ▶ Page 63]
-  **Internal Adjustment**, see [Internal adjustment ▶ Page 63]
-  **External Adjustment**, see [External adjustment ▶ Page 64]
-  **Fine adjustment**, see [Fine adjustment (model-dependent) ▶ Page 64]
-  **Routine test**, see [Routine test ▶ Page 65]
-  **Repeatability test**, see Repeatability test

7.2.1 Fully automatic adjustment (FACT)

Navigation:  **Activities** >  **Activities - Adjustments and tests** >  **FACT**

FACT is activated as a default value. If the **FACT** function is not activated, all functionalities, such as temperature and time, are inactive.

FACT means that the balance adjusts itself based on the following criteria:

- if the conditions change (temperature difference min. 2 °C), which may lead to a noticeable deviation in the measurement.
- on a predefined date and time programmed by the user.

Defining FACT

The date and time of FACT can be defined as follows:

- 1 Tap **FACT**.
- 2 Activate **Fully automatic adjustment (FACT)**.
⇒ The dialog screen **Fully automatic adjustment (FACT)** appears.
- 3 Select the time (hours : minutes) using the pick buttons.
- 4 Tap ✓ to confirm.
⇒ The time underneath **FACT** has been updated and displays the time of the daily adjustment.
- 5 Tap ← to return to the application screen.

When setting the time, hold the pick button to scroll faster.



If a predefined criterion is due, the flashing FACT status icon appears in the display. The balance indicates that it wishes to perform a FACT adjustment.

- 1 Unload the balance.
 - 2 Do not select any key.
⇒ Adjustment starts automatically.
- ⇒ The status icon extinguishes after successful adjustment.


7.2.2 Internal adjustment

Navigation:  **Activities** >  **Activities - Adjustments and tests** >  **Adjust internal**

The function **Internal adjustment** is available for models with internal weight only.

If the balance is configured and connected to a printer, the results of the adjustment process will be printed.

Perform an internal adjustment manually

- 1 Unload the balance.
- 2 Tap  **Adjust internal**.

- 3 Tap ►.
 - ⇒ The internal adjustment procedure will start. The screen displays **Adjustment ongoing...**
 - ⇒ When the internal adjustment procedure is successfully completed, the results of the internal adjustment will appear.
- 4 Tap ✓ to confirm.
 - ⇒ The screen **Activities - Adjustments and tests** appears.
- 5 Tap ◀ to return to the application screen.

7.2.3 External adjustment

Navigation: **Activities** > **Activities - Adjustments and tests** > **Adjust external**

Legal-for-trade

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

- 1 Tap **Adjust external**.
 - ⇒ The dialog screen **Adjustment weight** appears.
- 2 Tap to define the adjustment weight according to the weight certificate.
- 3 Tap ✕ to delete the value.
- 4 Enter the new value and confirm with ✓.
- 5 Prepare the adjustment weight and tap ► to start the adjustment process.
- 6 Load the adjustment weight in the center of the weighing pan.
- 7 Unload the adjustment weight from the weighing pan.
 - ⇒ When the external adjustment procedure is successfully completed, the result will appear.
- 8 Tap ✓ to confirm.
 - ⇒ The screen **Activities - Adjustments and tests** appears.
- 9 Tap ◀ to return to the application screen.

7.2.4 Fine adjustment (model-dependent)

Navigation: > **Activities - Adjustments and tests** > **Adjust fine**

The value of the internal adjustment weight can be individually adjusted in a very small range via the **Fine adjustment** function.

- Use only certificated weights.
- Make sure that the environmental conditions are correct.
- The balance must be leveled.
- Balance and test weights must observe the operating temperature.
- For fine adjustments, we recommend contacting a balance expert or a METTLER TOLEDO representative.

Legal-for-trade

Approved models are not able to be adjusted with this function.

Performing fine adjustment

- Adjusting weight is prepared.
- 1 Tap **Adjust fine**.
 - ⇒ The dialog screen **Reference weight** appears.
 - 2 Tap ✕ to delete the value.
 - 3 Enter the weight value according to the certificate.
 - 4 Tap ✓ to confirm.
 - 5 Tap ► to start the process.
 - 6 Place the adjustment weight in the center of the weighing pan.

- 7 Remove the adjustment weight.
⇒ The result will appear once the fine adjustment procedure is successfully completed.
- 8 Tap ✓ to confirm.
⇒ The screen **Activities - Adjustments and tests** appears.
- 9 Tap ← to return to the application screen.
Tap ↺ to reset the defined reference weight back to the default value.

7.2.5 Routine test

Navigation: **Activities** > **Activities - Adjustments and tests** > **Routine test**

The **Routine test** function allows the sensitivity of the balance to be set for periodic tests.

The set values appear at the top of the screen in the weighing information bar. The bar works as a shortcut.

Routine test – Main configuration

The following options can be set:

Parameter	Description	Values
Test weight in g	Defines the test weight.	Numerical value (depending on the balance type)
± Control limit in g	Defines the control limit.	Numerical value (depending on the balance model)
± Warning limit in g	Activates or deactivates the warning limit.	ON* numerical value (depending on the balance model) OFF
Use tare container	Activates or deactivates the use of a tare vessel.	ON OFF*

* Factory setting

Setting the test weight, control limits and warning limits

- 1 Tap .
⇒ The screen **Routine test – Main configuration** appears.
- 2 Tap **Test Weight**.
⇒ The dialog screen **Test weight in g** appears.
- 3 Tap ✕ to delete the value.
- 4 Enter the new value.
- 5 Tap .
⇒ The dialog screen **± Control limit in g** appears.
- 6 Tap ✕ to delete the value.
- 7 Enter the new value.
- 8 Tap .
- ⇒ The dialog screen **± Warning limit in g** appears.
- 9 Tap ✕ to delete the value.
- 10 Enter the new value and confirm with ✓.
- 11 Activate or deactivate the option **Use tare container** if required.
- 12 Tap ✓ to confirm.
- 13 Tap ← to return to the application screen.

Performing a routine test

- The routine test options **Test weight in g**, **± Control limit in g** and **± Warning limit in g** are defined.
- The test weight is prepared.
- 1 Tap ► to start the process.
- 2 Place the test weight in the center of the weighing pan.
 - ⇒ During the test, the screen shows **Waiting for stable weight...**
 - ⇒ When the test is finished, the screen shows **Please unload weight.**
- 3 Remove the test weight from the weighing pan.
 - ⇒ When the routine test is successfully completed, the result appears.
- 4 Tap ✓ to confirm.
- 5 Tap ◀ to return to the application screen.

7.2.6 Repeatability test


Navigation:  **Activities** >  **Activities - Adjustments and tests** >  **Repeatability test**

The function **Repeatability test** works only for models with internal weights.

A specific number of internal weight tests can be defined via the **Repeatability test** function.

The set number of tests appears at the top of the screen in the weighing information bar. The bar works as a shortcut.

Setting the number of repetitions

- 1 Tap .
 - ⇒ The dialog screen **Repeatability test - Repetitions** appears.
- 2 Tap ✕ to delete the value.
- 3 Enter the number of repetitions. The number must be between 5 and 100.
- 4 Tap ✓ to confirm the number of repetitions.
- 5 Tap ► to start the process.
 - ⇒ The balance executes the defined number of tests. The message **Test ongoing, please wait...** appears on the display during the process. The process can be aborted by tapping ✕.
 - ⇒ After the test is finished, an overview with the test results appears on the screen.
- 6 Tap ✓ to confirm.
- 7 Tap ◀ to return to the application screen.

8 Communication with Peripheral Devices

This section lists some typical examples of where the balance can communicate with peripheral devices. In most cases, it is possible to do so via USB or RS232. The chapters are primarily restricted to a USB setup.

8.1 USB - interface and installation

Before connecting the balance via the USB device interface and using either the **HOST** or **PC-Direct** function, the appropriate METTLER TOLEDO USB driver has to be assigned to the PC first. The USB driver can be found on www.mt.com/labweighing-software-download. If you have any questions, please contact a METTLER TOLEDO representative.



Note

If you connect the balance via USB to the PC before installing the METTLER TOLEDO USB driver, Windows will automatically install the wrong driver.

Requirements

- Balance with USB device interface
- PC with one of the following Microsoft Windows® 32-bit/64-bit operating systems: Win 7 (SP1), Win 8 or Win 10
- Administrator rights for installing software
- USB connection cable to link PC to balance

Download USB driver

- 1 Connect to the internet.
- 2 Go to the site www.mt.com/labweighing-software-download.
- 3 Click **Download Driver** in section **USB Driver for Advanced and Standard level laboratory balances**.
⇒ A pop-up window with interactions appears.
- 4 Click, e.g., **Open**.
⇒ The extract screen appears.
- 5 Extract the file **MT_Lab_Advanced-Standard_USB_Driver_Installer_v1.xx.zip** to your specified location.
- 6 Right-click on the downloaded installation program **MT_Lab_Advanced-Standard_USB_Driver_Installer_v1.xx.exe** and select **Run as Administrator**.
- 7 If a safety warning appears, confirm windows to perform the installation.
- 8 Click **Next** and follow the installer's instructions.

Installing the balance

- 1 Switch the balance **off**.
- 2 Connect the balance to the preferred USB port on the PC.
- 3 Switch the balance **on**.

8.2 Send weight value via USB or RS232C to a PC using PC-Direct

The numerical value displayed at the balance can be transferred to the cursor position in windows applications, e.g., Excel, Word in the same way as typing with the keyboard.

The data is transferred via USB or via the serial RS232C interface.

The weight value without the unit will be transferred.

Requirements








- PC with one of the following Microsoft Windows® 32-bit/64-bit operating systems: Win 7 (SP1), Win 8 or Win 10
- Serial interface RS232C or USB
- Administrator rights for installing the SerialPortToKeyboard software (if data transfer is via RS232C)
- Windows application, e.g., Excel
- Connection between balance and PC via cable RS232C or USB

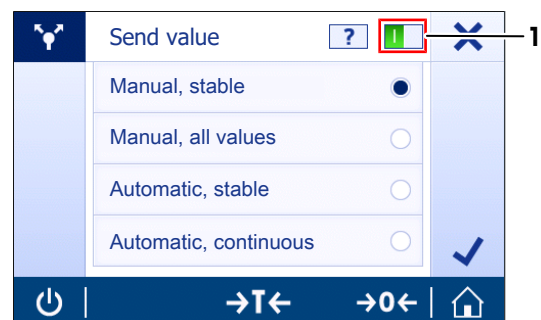
8.2.1 PC-Direct via USB

The balance can send data (as a keyboard) to the PC used for PC applications, e.g., Excel. The balance sends the weight value without the unit to the PC.

Use the USB connection cable to connect the balance with the PC. Connect the USB cable to the USB device (type B) on the balance.

- The balance must be disconnected from the PC.

- 1 Tap .
- 2 Tap  **General configuration and data**.
- 3 Tap  **Devices and connectivity**.
 - ⇒ The screen **Devices and connectivity** appears.
- 4 Tap **USB Device** and confirm with ✓.
- 5 Select **PC-Direct** and confirm with ✓.
 - ⇒ The screen **Connection type** appears.
- 6 If necessary, change the other settings, e.g., **End of line** and confirm with ✓.
- 7 Tap ✓ to confirm.
 - ⇒ The screen **Devices and services** appears.
- 8 Tap  to return to the previous screen.
- 9 Tap  **Publishing**.
 - ⇒ The screen **Publishing** appears.
- 10 Tap **PC-Direct (USB Device)**.
- 11 Tap **Send value - PC-Direct**.
- 12 If the selection is grayed out, enable changes to the factory settings by tapping the activation button (1) in the upper right corner.
 - ⇒ The screen **Send value** appears.
- 13 Select the transmission mode for single values and result values, e.g., **Manual, stable** and confirm with ✓.
- 14 Tap  to return to the previous screen.
- 15 **Connect the balance to the PC.**
- 16 Place the sample on the weighing pan.
- 17 Press , the next stable weight will be sent to the cursor position of your application.



8.2.2 PC-Direct via RS232C

8.2.2.1 Installing SerialPortToKeyboard software

The operation of PC-Direct via serial port RS232C requires the installation of **SerialPortToKeyboard** on your host computer. The file **SerialPortToKeyboard** can be found on www.mt.com/labweighing-software-download. If you have any questions, please contact a METTLER TOLEDO representative.

Download SerialPortToKeyboard

- 1 Connect to the internet.
- 2 Go to the site www.mt.com/labweighing-software-download.
- 3 Click **Download Software and Instructions** in section **SerialPortToKeyboard software for Advanced and Standard level laboratory balances**.
 - ⇒ A pop-up window with interactions appears.
- 4 Click, e.g., **Open**.
 - ⇒ The extract screen appears.
- 5 Extract the file **SerialPortToKeyboard_V_x.xx_installer_and_instructions.zip** to your specified location.
- 6 Right-click on the downloaded installation program **SerialPortToKeyboard_V_x.xx.exe** and select **Run as Administrator**.
- 7 If a safety warning appears, confirm windows to perform the installation.
- 8 Click **Next** and follow the installer's instructions.

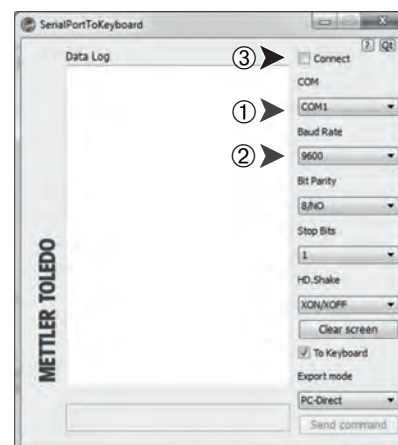
Checking operation

- 1 Start **SerialPortToKeyboard** (RS232C)
- 2 Start Excel (or another application) at the PC.
- 3 Activate a cell in Excel.

Settings at the PC







Settings for SerialPortToKeyboard

- 1 Select the serial port **COM** for the connection with the balance.
- 2 Set the **Baud Rate** to **9600**.
- 3 Activate **Connect**.
 - Closing the window terminates the session.



According to your selected **End of line** option, the displayed values will appear, e.g., in the column one after the other one in the different rows.

8.2.2.2 Settings on the balance









- The balance is connected to the PC via an RS232 cable.
- 1 Tap .
- 2 Tap  **General configuration and data**.
- 3 Tap  **Devices and connectivity**.
 - ⇒ The screen **Devices and connectivity** appears.
- 4 Tap **RS232 (Serial)**.
- 5 Tap **Device type**.
- 6 Select **PC-Direct** and confirm with ✓.
 - ⇒ The screen **Connection type** appears.
- 7 If necessary, change the other settings, e.g., **End of line** and confirm with ✓.
- 8 Tap ✓ to confirm.
- 9 Tap  to return to the previous screen.
- 10 Tap  **Publishing**.
 - ⇒ The screen **Publishing** appears.
- 11 Tap **PC-Direct (RS232)**.
 - ⇒ The screen **Send data** appears.
- 12 Select the transmission mode for single values and result values, e.g., **Automatic, stable** and confirm with ✓.
- 13 Tap ✓ to confirm.
 - ⇒ The screen **Publishing** appears.
- 14 Tap  to return to the previous screen.
- 15 Place the sample on the weighing pan.
 - ⇒ The next stable weight will be sent automatically to the cursor position of your application.

8.3 Send weight value via USB to a PC using EasyDirect balance

The software EasyDirect balance transfers weighing results and additional data such as the date and time or the measurement unit directly to various possible applications on a PC, e.g. an Excel file. The software can be ordered at METTLER TOLEDO and must be installed on a PC.

- EasyDirect balance is installed on the PC according to the user requirements.
- The METTLER TOLEDO USB* driver is installed on your PC.
- The balance is connected to the PC via USB* device interface.

Configure balance

- 1 Tap .
- 2 Tap  **General configuration**.
- 3 Tap  **Devices and connectivity**.
 - ⇒ The screen **Devices and connectivity** appears.
- 4 Tap **USB Device (USB B)**.
 - ⇒ The screen **USB Device (USB B)** appears.
- 5 Tap **Device type**.
 - ⇒ The screen **Device type** appears.
- 6 Select **Host (Default)**.
- 7 Tap  to return to the previous screen.
- 8 Tap **Command set**.
 - ⇒ The screen **Command set** appears.
- 9 Select the appropriate option.
- 10 Tap  to return to the previous screen.
- 11 Tap  to return to the **General configuration** screen.
- 12 Tap  **Publishing**.
 - ⇒ The screen **Publishing** appears.
- 13 Tap **Send value – Host (USB B)**.
- 14 Switch option **ON** and select the correct **Send value**.
- 15 Tap  to return to the application screen.

Transfer values

- 1 Start EasyDirect balance on your PC.
- 2 Select the correct COM port used by the balance.
- 3 Configure all settings according to the user requirements.
- 4 Place the sample on the weighing pan.
 - ⇒ The weighing result is transferred to the PC program either automatically or when the print icon is pressed. This depends on the settings in the publishing menu of the balance.

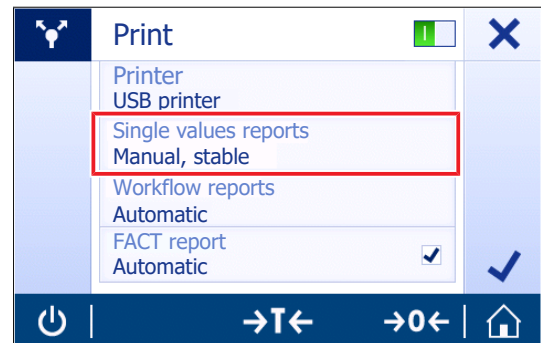
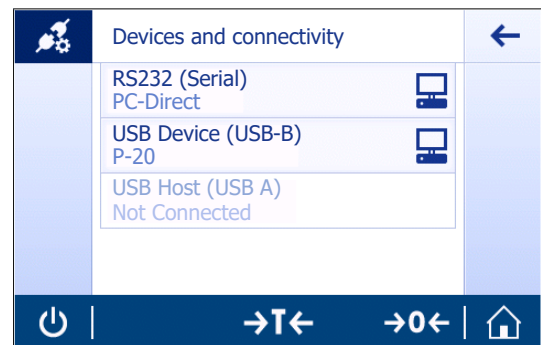
8.4 Connect via USB to a printer and print weighing results

Prerequisite

- The printer is connected to the power supply.
- Printer is switched on.
- The printer is connected to the balance via USB cable. Do not connect the printer with the balance, before it is correctly powered on.

The following example shows the option to automatically print the next stable value.

- 1 Tap .
- 2 Tap **General configuration**.
- 3 Tap **Devices and connectivity**.
 - ⇒ The screen **Devices and connectivity** appears.
- 4 The connected USB device appears automatically.
- 5 Tap the connected printer, e.g., **P-20** and confirm with .
- 6 Tap to confirm.
- 7 Tap to return to the previous screen.
 - ⇒ The screen **Device/service type** appears.
- 8 Tap to return to the **General configuration** screen.
- 9 Tap **Publishing**.
 - ⇒ The screen **Publishing** appears.
- 10 Tap **Print**.
 - ⇒ The screen **Print** appears.
- 11 Tap **Single values reports**.
 - ⇒ The screen **Single values reports** appears.
- 12 Select the transmission mode, e.g., **Automatic, stable** and confirm with .
- 13 Tap to confirm.
- 14 Tap to return to the previous screen.
- 15 Place the sample on the weighing pan.
 - ⇒ The next stable weight will be sent automatically.



8.5 Connect a USB barcode reader and scan the barcode

The following example shows how to scan the sample ID via a barcode reader.

Use the USB connection cable to connect the barcode reader to a balance.











Only the balance settings are changed for this menu item.











Refer to your barcode reader's documentation for information about the barcode reader settings.

The barcode reader must be configured as USB keyboard (with standard key encoding).

Settings on the balance

- USB barcode reader is connected to the balance.
- 1 Tap  in the status information field on the balance screen.
 - ⇒ The screen **Notifications** appears.
- 2 Tap **Input device connected**.
 - ⇒ The screen **Input device connected** appears.
- 3 Tap  **Barcode reader** and confirm with .
- 4 Tap  to return to the previous screen.
- 5 Tap .
- 6 Tap  **General configuration**.
- 7 Tap  **Devices**.
- 8 The screen **Devices** appears.
- 9 Tap  **Barcode reader**.
 - ⇒ The screen **Barcode reader – External input device** appears.
- 10 Check the **End of line** setting. The setting must be the same as the barcode reader.
- 11 Tap  to confirm.
- 12 Tap  to return to the previous screen.

Typical setup to use the barcode reader

- 1 Tap .
- 2 Select an application, e.g.,  **Weighing**
- 3 Tap  .
 - ⇒ The screen **Weighing – Main configuration** appears.
- 4 Tap .
 - ⇒ The screen **Weighing - reports configuration** appears.
- 5 Tap **Identifications**.
 - ⇒ The screen **Identifications** appears.
- 6 Tap **ID 4**.
- 7 Activate **ID 4**.
- 8 Select **Input prompt** and confirm with .
- 9 Tap  to return to the previous screen.
- 10 Place the sample on the weighing pan.
- 11 Tap .
 - ⇒ The screen **Sample ID** appears.
- 12 Scan the sample ID with the barcode reader.
 - ⇒ The sample ID is entered on the **Sample ID** screen and the screen is then closed.

9 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.

9.1 Maintenance tasks

Maintenance action	Recommended interval	Remarks
Performing an internal adjustment	<ul style="list-style-type: none">• Daily• After cleaning• After leveling• After changing the location	see "Activities - Adjustments and tests"
Cleaning	<ul style="list-style-type: none">• After every use• After changing the substance• Depending on the degree of pollution• Depending on your internal regulations (SOP)	see "Cleaning"
Performing routine tests (eccentricity test, repeatability test, sensitivity test). METTLER TOLEDO recommends to at least perform a sensitivity test.	<ul style="list-style-type: none">• After cleaning• After assembling the balance• Depending on your internal regulations (SOP)	see "Activities - Adjustments and tests"

See also

 Activities - Adjustments and tests ► Page 63

 Cleaning ► Page 75

9.2 Cleaning

9.2.1 Disassembling balances with draft shield for cleaning



CAUTION

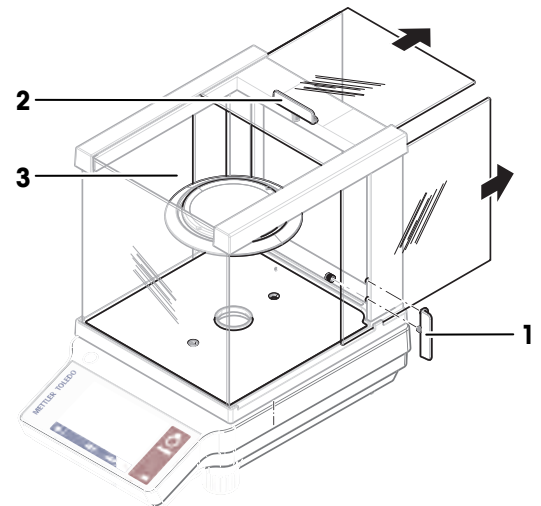
Injury due to sharp objects or broken glass

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

- Always proceed with focus and care.

- 1 On both side glass doors, unscrew the handles (1) and dismount them.
- 2 Push the side glass doors all the way back and dismount them.
- 3 On the top glass doors, unscrew the handle (2) and dismount it.
- 4 Push the top glass doors all the way back and dismount it.
- 5 Remove weighing pan (3).

After cleaning, reinstall all components in the reverse order. For balance mounting, refer to [Assembling the balance ► Page 18].



9.2.2 Cleaning the balance



WARNING

Death or serious injury due to electric shock

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

- 1 Disconnect the instrument from the power supply prior to cleaning and maintenance.
- 2 Prevent liquid from entering the instrument, terminal or AC/DC adapter.



NOTICE

Damage due to improper cleaning

Improper cleaning can damage the load cell or other essential parts.

- 1 Do not use any cleaning agents other than the ones specified in the "Reference Manual" or "Cleaning Guide".
- 2 Do not spray or pour liquids on the instrument. Always use a moistened lint-free cloth or a tissue.
- 3 Always wipe out from inside to outside of the instrument.

Cleaning around the balance

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

Cleaning the removable parts

- Clean the removed part with a damp cloth or a tissue and a mild cleaning agent.

Cleaning the balance


- 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 at first with a disposable tissue.
- 4 Remove sticky substances with a damp lint-free cloth and a mild solvent.





Note

Useful details to avoid soiling the instrument are described in the Mettler-Toledo GmbH "SOP for Cleaning a Balance".

9.2.3 Putting into operation after cleaning

- 1 Reassemble the balance.
 - 2 If applicable: Check smooth movement of the draft shield.
 - 3 Press  to switch on the balance.
 - 4 Warm up the balance. Wait 1 h for the acclimatization, before starting the tests.
 - 5 Check the level and level the balance if necessary.
 - 6 Perform an internal adjustment.
 - 7 Perform a routine test according to the internal regulations of your company. METTLER TOLEDO recommends to perform a repeatability test after cleaning the balance.
 - 8 Press **→0/T←** to zero the balance.
- ⇒ The balance has been put into operation and is ready to use.

See also

-  Leveling the balance ► Page 22
-  Adjusting the balance ► Page 23

10 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.

10.1 Error messages

Error message	Possible cause	Diagnostic	Remedy
NO STABILITY	Vibrations at the workplace.	Place beaker with tap water on the weighing table. Vibrations cause ripples on the water surface.	<ul style="list-style-type: none"> Protect weighing location against vibrations (vibration absorber, etc.). Set weighing parameters coarser (change Environment from Stable to Standard or even Unstable). Find a different weighing location (by agreement with customer).
	Draft due to untight draft shield and /or open window.	Make sure draft shield or window is closed.	<ul style="list-style-type: none"> Close draft shield or window. Set weighing parameters coarser (change Environment from Stable to Standard or even Unstable).
	The location is not suitable for weighing.	—	Check and observe the requirements for the location, refer to "Selecting the location".
	Something is touching the weighing pan.	Check for touching parts or dirt.	Remove touching parts or clean the balance.
Adjustment aborted Weight out of range.	Wrong adjustment weight.	Check weight.	Place correct weight on the weighing pan.
EEPROM error.	Data in EEPROM damaged.	—	Please contact your METTLER TOLEDO-Support representative.
Wrong cell data.	Defect load cell data.	—	Please contact your METTLER TOLEDO-Support representative.
No standard adjustment.	—	—	Please contact your METTLER TOLEDO-Support representative.
Program memory defect.	—	—	Please contact your METTLER TOLEDO-Support representative.

Error message	Possible cause	Diagnostic	Remedy
Temperature sensor defect.	AC/DC adapter connected to power before connecting to the balance. Temperature sensor of load cell defect.	—	Remove the AC/DC adapter from the power and connect first to the balance before connecting to the power if persist please contact your METTLER TOLEDO-Support representative.
Wrong load cell brand.	Wrong load cell installed.	—	Please contact your METTLER TOLEDO-Support representative.
Wrong type data set.	Wrong type data set.	—	Please contact your METTLER TOLEDO-Support representative.
Memory full	Memory full.	—	Clear the memory by finishing all applications where a measurement is ongoing.
A problem occurred while starting the balance. Some data could not be read correctly from memory. Please proceed and check date and time settings. Please contact your MT-Support representative if the problem persists.	Some data could not be read correctly from memory.	Check date and time settings.	Please contact your METTLER TOLEDO-Support representative if the problem persists.
A problem occurred while starting the balance. Some data could not be read correctly from memory. The instrument will reset and restart. Please contact your MT-Support representative if the problem persists.	Some data could not be read correctly from memory.	—	Please contact your METTLER TOLEDO-Support representative.
Weight out of initial zero range	Wrong weighing pan. Pan is missing. Pan is not empty.	Check weighing pan.	Mount correct weighing pan or unload weighing pan.
Weight out of zero range	Zero range limit overrun or underrun.	—	Reduce / increase weight on weighing pan.
Weight out of tare range	Tare range limit overrun or underrun.	—	Reduce / increase weight on weighing pan.
Battery backup lost	Backup battery is empty. This battery ensures that the date and time are not lost when the balance is disconnected from power.	Connect the balance to the power supply for charging the battery (full capacity after 2 days of charging).	If battery cannot be recharged, contact your METTLER TOLEDO-Support representative.

Error message	Possible cause	Diagnostic	Remedy
USB device is not recognized when connected to balance	Fluctuation in the external electric grid. Interference from power line.	–	Restart balance.



10.2 Error symptoms

Error symptom	Possible cause	Diagnostic	Remedy
Display is dark	Instrument is switched off.	–	Switch on the instrument.
	Power plug not connected.	Check	Connect power cable to power supply.
	Power supply not connected to balance.	Check	Connect power supply.
	Power supply is faulty.	Check/test	Replace power supply.
	Wrong power supply.	Check that input data on type plate match the power supply values.	Use proper power supply.
	Balance must be restarted.	–	Restart balance.
	Connector socket on balance is corroded or faulty.	Check	Please contact your METTLER TOLEDO-Support representative.
	Display is faulty.	Replace display.	Please contact your METTLER TOLEDO-Support representative.
Touch display is not responding	Touch display is faulty.	Replace display.	Please contact your METTLER TOLEDO-Support representative.
Touch display is partly not responding	Touch display is not correctly adjusted.	–	Perform touch screen adjustment. Reset balance (factory reset).
The value drifts into plus or minus	Room, environment not suitable.	–	Environmental recommendations <ul style="list-style-type: none"> • Windowless, non air-conditioned room, e.g., basement. • Only one person in the weighing room. • Sliding doors. Standard doors cause pressure changes. • No draft in weighing room (check with suspended threads). • No air conditioning (temperature oscillates, draft). • Acclimatize balance, take dummy measurements.

Error symptom	Possible cause	Diagnostic	Remedy
			<ul style="list-style-type: none"> Instrument uninterruptedly connected to the power supply (24h per day).
	Direct sunlight or other heat source.	Is any sun shade (blinds, curtains, etc.) available?	Select location according to "Selecting the location" (customer responsibility).
	Weighing sample absorbs moisture or evaporates moisture.	<ul style="list-style-type: none"> Is the weighing result with a test weight stable? Sensitive weighing samples, e.g., paper, cardboard, wood, plastic, rubber, liquids. 	<ul style="list-style-type: none"> Use aids. Cover weighing sample.
	Weighing sample is electrostatically charged.	<ul style="list-style-type: none"> Is the weighing result with a test weight stable? Sensitive weighing samples, e.g., plastic, powder, insulating materials. 	<ul style="list-style-type: none"> Increase air humidity in weighing chamber (45% - 50%). Use ionizer.
	Weighing sample is hotter or colder than the air in the weighing chamber.	Weighing operation with test weight does not show this effect.	Bring weighing sample to room temperature before weighing.
	Instrument has not yet reached thermal equilibrium.	<ul style="list-style-type: none"> Was there a power outage? Was power supply disconnected? 	<ul style="list-style-type: none"> Acclimatize instrument for at least 1 hour. Depending on climatic conditions, extend this period accordingly. Instrument switched on for at least 1 hour, refer to "General data"
Display shows overload or underload	The weight on the weighing pan exceeds the weighing capacity of the instrument.	Check weight.	Reduce the weight on the weighing pan.
	Wrong weighing pan.	Slightly lift or press weighing pan. The weight display appears.	Use proper weighing pan.
	No weighing pan.	—	Install weighing pan.
	Incorrect zero point at switch-on.	—	<ul style="list-style-type: none"> Switch off balance. Disconnect and reconnect power cable.

10.3 Status messages/Status icons

Status messages are displayed by means of small icons. The status icons indicate the following:

Icon	Status description	Diagnostic	Remedy
	Automatic FACT adjustment is currently not possible.	Instrument is busy.	<ul style="list-style-type: none"> • Unload the balance. • Do not press any key for 2 minutes. The display stabilizes.
	Service due.	—	Please contact your METTLER TOLEDO-Support representative.

10.4 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.

11 Technical Data

11.1 General data

Standard power supply

AC/DC adapter:

Primary: 100 – 240 V~ 0.5 A, 50 – 60 Hz

Secondary: 12 V 1.0 A MAX 24 – 34 VA LPS (Limited Power Source), SELV (Safety Extra Low Voltage)

Balance power consumption:

12 V DC, 0.84 A

Polarity:



Mean sea level:

Can be used up to 2000 m above mean sea level

Optional power supply

AC/DC adapter:

Primary: 100 – 240 V~ 0.8 A, 50 – 60 Hz, 60 – 80 VA

Secondary: 12 V DC, 2.5 A LPS (Limited Power Source), SELV (Safety Extra Low Voltage)

Cable for AC/DC adapter:

3-core, with country-specific plug

Balance power consumption:

12 V DC, 2.25 A

Polarity:



Mean sea level:

Can be used up to 4000 m above mean sea level

Protection and standards

Overvoltage category:

II

Degree of pollution:

2

Protection:

Protected against dust and water

Standards for safety and EMC:

See Declaration of Conformity

Range of application:

For use in closed interior rooms only

Environmental conditions

Height above mean sea level:

Depending on the power adapter (up to 2000 or 4000 m)

Ambient temperature:

Operating conditions for ordinary lab application: +10 to 30 °C (operability guaranteed between +5 and 40 °C)

Relative air humidity:

Max. 80% up to 31 °C, linearly decreasing to 50% at 40 °C, noncondensing

Warm-up time:

At least 30 minutes (60 minutes for 0.1 mg models) after connecting the balance to the power supply. When switched on from standby, the instrument is ready for operation immediately.

Materials

Housing:

Top Housing: Plastic (ABS)

Bottom housing: Die-cast aluminum, powder coated

Weighing pan:

Pan ø 90 mm: Stainless steel X2CrNiMo 17-12-2 (1.4404)

All others: Stainless steel X5CrNi 18-10 (1.4301)

Draft shield element:

0.1 mg models: Stainless steel X2CrNiMo 17-12-2 (1.4404)

Draft shield:

Plastic (ABS), glass

Protective cover:

Plastic (PET)

TFT touch screen surface:

Glass

11.2 Model-specific data

11.2.1 Carat balances with a readability of 0.001 ct / 0.1 mg with draft shield

	JET503C	JET703C
Limit Values		
Capacity	505 ct / 101 g	700 ct / 140 g
Nominal load	100 g	140 g
Readability	0.001 ct / 0.1 mg	0.001 ct / 0.1 mg
Repeatability (at nominal load)	0.1 mg	0.1 mg
Linearity deviation	0.2 mg	0.2 mg
Eccentricity deviation (at test load)	0.4 mg (50 g)	0.4 mg (50 g)
Sensitivity offset (at nominal load) ¹⁾	1 mg	1 mg
Sensitivity temperature drift ²⁾	0.0002 %/°C	0.0002 %/°C
Typical values		
Repeatability (at nominal load)	0.08 mg	0.08 mg
Linearity deviation	0.06 mg	0.06 mg
Eccentricity deviation (at test load)	0.15 mg (50 g)	0.15 mg (50 g)
Sensitivity offset (at nominal load) ¹⁾	0.6 mg	0.6 mg
Minimum weight (tolerance = 1%) ³⁾	16 mg	16 mg
Settling time	2 s	2 s
Adjustment	Internal / FACT	Internal / FACT
Dimensions & other specifications		
Balance dimensions (W × D × H)	210 × 344 × 279 mm	210 × 344 × 279 mm
Weighing pan dimensions (W × D)	ø 90 mm	ø 90 mm
Usable height of draft shield	173 mm	173 mm
Balance weight	4.6 kg	4.6 kg
Weights for routine testing		
Weights (OIML class)	5 g (F2)/ 100 g (F2)	5 g (F2)/ 100 g (F2)
Weights (ASTM class)	5 g (ASTM 1)/ 100 g (ASTM 1)	5 g (ASTM 1)/ 100 g (ASTM 1)

¹⁾ after adjustment with internal weight

²⁾ in the temperature range 10 °C ... 30 °C

³⁾ determined at 5% load, k = 2

	JET1103C	JET1603C
Limit Values		
Capacity	1100 ct / 220 g	1600 ct / 320 g
Nominal load	200 g	300 g
Readability	0.001 ct / 0.1 mg	0.001 ct / 0.1 mg
Repeatability (at nominal load)	0.1 mg	0.1 mg
Linearity deviation	0.2 mg	0.2 mg
Eccentricity deviation (at test load)	0.4 mg (100 g)	0.4 mg (100 g)
Sensitivity offset (at nominal load) ¹⁾	1 mg	1 mg
Sensitivity temperature drift ²⁾	0.0002 %/°C	0.0002 %/°C
Typical values		
Repeatability (at nominal load)	0.08 mg	0.08 mg
Linearity deviation	0.06 mg	0.06 mg
Eccentricity deviation (at test load)	0.15 mg (100 g)	0.15 mg (100 g)
Sensitivity offset (at nominal load) ¹⁾	0.2 mg	0.2 mg
Minimum weight (tolerance = 1%) ³⁾	16 mg	16 mg
Settling time	2 s	2 s
Adjustment	Internal / FACT	Internal / FACT
Dimensions & other specifications		
Balance dimensions (W × D × H)	210 × 344 × 279 mm	210 × 344 × 279 mm
Weighing pan dimensions (W × D)	ø 90 mm	ø 90 mm
Usable height of draft shield	173 mm	173 mm
Balance weight	4.6 kg	4.6 kg
Weights for routine testing		
Weights (OIML class)	10 g (F2)/ 200 g (F2)	10 g (F2)/ 200 g (F2)
Weights (ASTM class)	10 g (ASTM 1)/ 200 g (ASTM 1)	10 g (ASTM 1)/ 200 g (ASTM 1)

¹⁾ after adjustment with internal weight

²⁾ in the temperature range 10 °C ... 30 °C

³⁾ determined at 5% load, k = 2

11.2.2 Gold balances with a readability of 1 mg with draft shield

	JET303G	JET603G	JET1003G
Limit Values			
Capacity	320 g	620 g	1020 g
Nominal load	300 g	600 g	1000 g
Readability	1 mg	1 mg	1 mg
Repeatability (at nominal load)	1 mg	1 mg	1 mg
Linearity deviation	2 mg	2 mg	2 mg
Eccentricity deviation (at test load)	4 mg (100 g)	4 mg (200 g)	4 mg (500 g)
Sensitivity offset (at nominal load) ¹⁾	8 mg	8 mg	8 mg
Sensitivity temperature drift ²⁾	0.0003 %/°C	0.0003 %/°C	0.0003 %/°C
Typical values			
Repeatability	0.7 mg	0.7 mg	0.7 mg
Repeatability in fine range	–	–	–
Linearity deviation	0.6 mg	0.6 mg	0.6 mg
Eccentricity deviation (at test load)	1.5 mg (100 g)	1.5 mg (200 g)	1.5 mg (500 g)
Sensitivity offset (at nominal load) ¹⁾	5 mg	5 mg	5 mg
Minimum weight (tolerance = 1%) ³⁾	140 mg	140 mg	140 mg
Settling time	1.5 s	1.5 s	1.5 s
Adjustment	Internal / FACT	Internal / FACT	Internal / FACT
Dimensions & other specifications			
Balance dimensions (W × D × H)	210 × 319 × 289 mm	210 × 319 × 289 mm	210 × 319 × 289 mm
Weighing pan dimensions (W × D)	ø 120 mm	ø 120 mm	ø 120 mm
Usable height of draft shield	170 mm	170 mm	170 mm
Balance weight	4.9 kg	4.9 kg	4.9 kg
Weights for routine testing			
Weights (OIML class)	10 g (F2)/ 200 g (F2)	20 g (F2)/ 500 g (F2)	50 g (F2)/ 1000 g (F2)
Weights (ASTM class)	10 g (ASTM 1)/ 200 g (ASTM 1)	20 g (ASTM 1)/ 500 g (ASTM 1)	50 g (ASTM 1)/ 1000 g (ASTM 1)

¹⁾ after adjustment with internal weight

²⁾ in the temperature range 10 °C ... 30 °C

³⁾ determined at 5% load, k = 2

Gold balances with a readability of 10 mg with draft shield

	JET602G/AED	JET1002G/AED
Limit Values		
Capacity	620 g	1020 g
Nominal load	600 g	1000 g
Readability	10 mg	10 mg
Repeatability (at nominal load)	5 mg	5 mg
Linearity deviation	5 mg	5 mg
Eccentricity deviation (at test load)	10 mg (200 g)	10 mg (500 g)
Sensitivity offset (at nominal load) ¹⁾	12 mg	10 mg
Sensitivity temperature drift ²⁾	0.0003 %/°C	0.0003 %/°C
Typical values		
Repeatability	4 mg	4 mg
Linearity deviation	4 mg	4 mg
Eccentricity deviation (at test load)	4 mg (200 g)	4 mg (500 g)
Sensitivity offset (at nominal load) ¹⁾	8 mg	8 mg
Minimum weight (tolerance = 1%) ³⁾	800 mg	800 mg
Settling time	1.5 s	1.5 s
Adjustment	Internal / FACT	Internal / FACT
Dimensions & other specifications		
Balance dimensions (W × D × H)	210 × 319 × 289 mm	210 × 319 × 289 mm
Weighing pan dimensions (W × D)	ø 120 mm	ø 120 mm
Usable height of draft shield	170 mm	170 mm
Balance weight	4.9 kg	4.9 kg
Weights for routine testing		
Weights (OIML class)	20 g (F2) / 500 g (F2)	50 g (F2) / 1000 g (F2)
Weights (ASTM class)	20 g (ASTM 1) / 500 g (ASTM 1)	50 g (ASTM 1) / 1000 g (ASTM 1)

¹⁾ after adjustment with internal weight

²⁾ in the temperature range 10 °C ... 30 °C

³⁾ determined at 5% load, k = 2

11.2.3 Gold balances with a readability of 10 mg and 100 mg

	JET1002G	JET2002G	JET3002G
Limit Values			
Capacity	1200 g	2200 g	3200 g
Nominal load	1200 g	2000 g	3000 g
Readability	10 mg	10 mg	10 mg
Repeatability (at nominal load)	10 mg	10 mg	10 mg
Linearity deviation	20 mg	20 mg	20 mg
Eccentricity deviation (at test load)	40 mg (500 g)	40 mg (1000 g)	40 mg (1000 g)
Sensitivity offset (at nominal load) ¹⁾	80 mg	80 mg	80 mg
Sensitivity temperature drift ²⁾	0.0003 %/°C	0.0003 %/°C	0.0003 %/°C
Typical values			
Repeatability	7 mg	7 mg	7 mg
Linearity deviation	6 mg	6 mg	6 mg
Eccentricity deviation (at test load)	15 mg (500 g)	15 mg (1000 g)	15 mg (1000 g)
Sensitivity offset (at nominal load) ¹⁾	80 mg	80 mg	80 mg
Minimum weight (tolerance = 1%) ³⁾	1.4 g	1.4 g	1.4 g
Settling time	1 s	1 s	1.5 s
Adjustment	Internal / FACT	Internal / FACT	Internal / FACT
Dimensions & other specifications			
Balance dimensions (W × D × H)	200 × 319 × 100 mm	200 × 319 × 100 mm	200 × 319 × 100 mm
Weighing pan dimensions (W × D)	180 × 180 mm	180 × 180 mm	180 × 180 mm
Usable height of draft shield	-	-	-
Balance weight	3.8 kg	3.8 kg	3.8 kg
Weights for routine testing			
Weights (OIML class)	50 g (F2)/ 1000 g (F2)	100 g (F2)/ 2000 g (F2)	100 g (F2)/ 2000 g (F2)
Weights (ASTM class)	50 g (ASTM 4)/ 1000 g (ASTM 4)	100 g (ASTM 4)/ 2000 g (ASTM 4)	100 g (ASTM 4)/ 2000 g (ASTM 4)

¹⁾ after adjustment with internal weight

²⁾ in the temperature range 10 °C ... 30 °C

³⁾ determined at 5% load, k = 2

	JET4002G	JET6002G	JET12002G
Limit Values			
Capacity	4200 g	6200 g	12200 g
Nominal load	4000 g	6000 g	10000 g
Readability	10 mg	10 mg	10 mg
Repeatability (at nominal load)	10 mg	10 mg	10 mg
Linearity deviation	20 mg	20 mg ⁴⁾	20 mg
Eccentricity deviation (at test load)	40 mg (2000 g)	60 mg (2000 g)	70 mg (5000 g)
Sensitivity offset (at nominal load) ¹⁾	80 mg	80 mg	80 mg
Sensitivity temperature drift ²⁾	0.0003 %/°C	0.0003 %/°C	0.0003 %/°C
Typical values			
Repeatability	7 mg	7 mg	7 mg
Linearity deviation	6 mg	6 mg ⁴⁾	6 mg
Eccentricity deviation (at test load)	15 mg (2000 g)	20 mg (2000 g)	25 mg (5000 g)
Sensitivity offset (at nominal load) ¹⁾	24 mg	36 mg	48 mg
Minimum weight (tolerance = 1 %) ³⁾	1.4 g	1.4 g	1.4 g
Settling time	1.5 s	1.5 s	1.5 s
Adjustment	Internal / FACT	Internal / FACT	Internal / FACT
Dimensions & other specifications			
Balance dimensions (W × D × H)	200 × 319 × 100 mm	200 × 319 × 100 mm	200 × 319 × 100 mm
Weighing pan dimensions (W × D)	180 × 180 mm	180 × 180 mm	180 × 180 mm
Usable height of draft shield	—	—	—
Balance weight	3.8 kg	3.8 kg	3.8 kg
Weights for routine testing			
Weights (OIML class)	200 g (F2)/ 2000 g (F2)	200 g (F2)/ 5000 g (F2)	500 g (F2)/ 10 000 g (F2)
Weights (ASTM class)	200 g (ASTM 4)/ 2000 g (ASTM 4)	200 g (ASTM 4)/ 5000 g (ASTM 4)	500 g (ASTM 4)/ 10 000 g (ASTM 4)

¹⁾ after adjustment with internal weight

²⁾ in the temperature range 10 °C ... 30 °C

³⁾ determined at 5% load, k = 2

⁴⁾ up to nominal weight

	JET6001G
Limit Values	
Capacity	6200 g
Nominal load	6000 g
Readability	100 mg
Repeatability (at nominal load)	100 mg
Linearity deviation	200 mg
Eccentricity deviation (at test load)	400 mg (2000 g)
Sensitivity offset (at nominal load) ¹⁾	480 mg
Sensitivity temperature drift ²⁾	0.0005 %/°C
Typical values	
Repeatability	70 mg
Linearity deviation	60 mg
Eccentricity deviation (at test load)	100 mg (2000 g)
Sensitivity offset (at nominal load) ¹⁾	300 mg
Minimum weight (tolerance = 1%) ³⁾	14 g
Settling time	1 s
Adjustment	Internal / FACT
Dimensions & other specifications	
Balance dimensions (W × D × H)	200 × 319 × 100 mm
Weighing pan dimensions (W × D)	180 × 180 mm
Usable height of draft shield	–
Balance weight	3.8 kg
Weights for routine testing	
Weights (OIML class)	200 g (F2) / 5000 g (F2)
Weights (ASTM class)	200 g (ASTM 4) / 5000 g (ASTM 4)

¹⁾ after adjustment with internal weight

²⁾ in the temperature range 10 °C ... 30 °C

³⁾ determined at 5% load, k = 2

	JET2001G/AED	JET3001G/AED	JET6001G/AED
Limit Values			
Capacity	2200 g	3200 g	6200 g
Nominal load	2000 g	3000 g	6000 g
Readability	100 mg	100 mg	100 mg
Repeatability (at nominal load)	50 mg	50 mg	50 mg
Linearity deviation	50 mg	50 mg	50 mg
Eccentricity deviation (at test load)	100 mg (1000 g)	100 mg (1000 g)	100 mg (2000 g)
Sensitivity offset (at nominal load) ¹⁾	80 mg	100 mg	150 mg
Sensitivity temperature drift ²⁾	0.0003 %/°C	0.0003 %/°C	0.0003 %/°C
Typical values			
Repeatability	40 mg	40 mg	40 mg
Linearity deviation	40 mg	40 mg	40 mg
Eccentricity deviation (at test load)	40 mg (1000 g)	40 mg (1000 g)	40 mg (2000 g)
Sensitivity offset (at nominal load) ¹⁾	50 mg	60 mg	80 mg
Minimum weight (tolerance = 1 %) ³⁾	8 g	8 g	8 g
Settling time	1 s	1.5 s	1.5 s
Adjustment	Internal / FACT	Internal / FACT	Internal / FACT
Dimensions & other specifications			
Balance dimensions (W × D × H)	200 × 319 × 100 mm	200 × 319 × 100 mm	200 × 319 × 100 mm
Weighing pan dimensions (W × D)	180 × 180 mm	180 × 180 mm	180 × 180 mm
Usable height of draft shield	-	-	-
Balance weight	3.8 kg	3.8 kg	3.8 kg
Weights for routine testing			
Weights (OIML class)	100 g (F2)/ 2000 g (F2)	100 g (F2)/ 2000 g (F2)	200 g (F2)/ 5000 g (F2)
Weights (ASTM class)	100 g (ASTM 4)/ 2000 g (ASTM 4)	100 g (ASTM 4)/ 2000 g (ASTM 4)	200 g (ASTM 4)/ 5000 g (ASTM 4)

¹⁾ after adjustment with internal weight

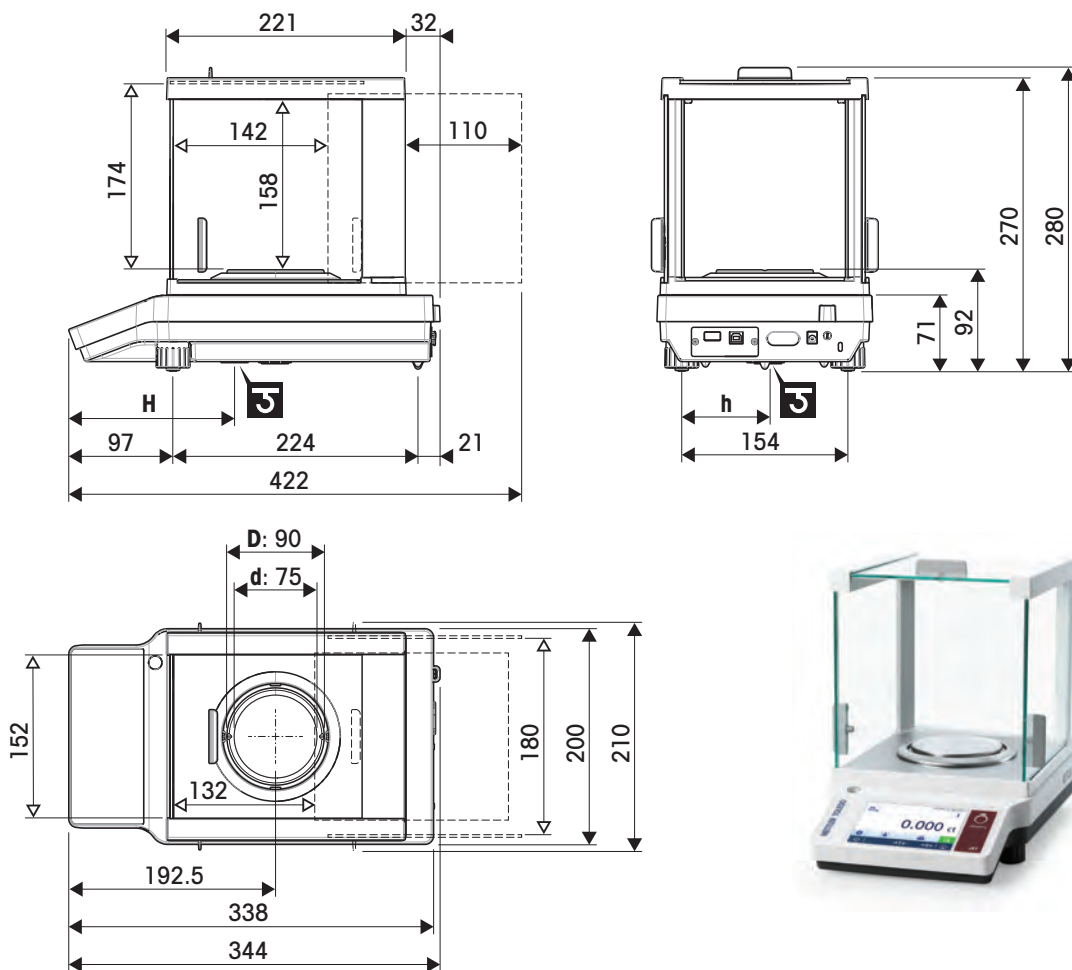
²⁾ in the temperature range 10 °C ... 30 °C

³⁾ determined at 5% load, k = 2

11.3 Dimensions

11.3.1 Carat balances with a readability of 0.001 ct / 0.1 mg

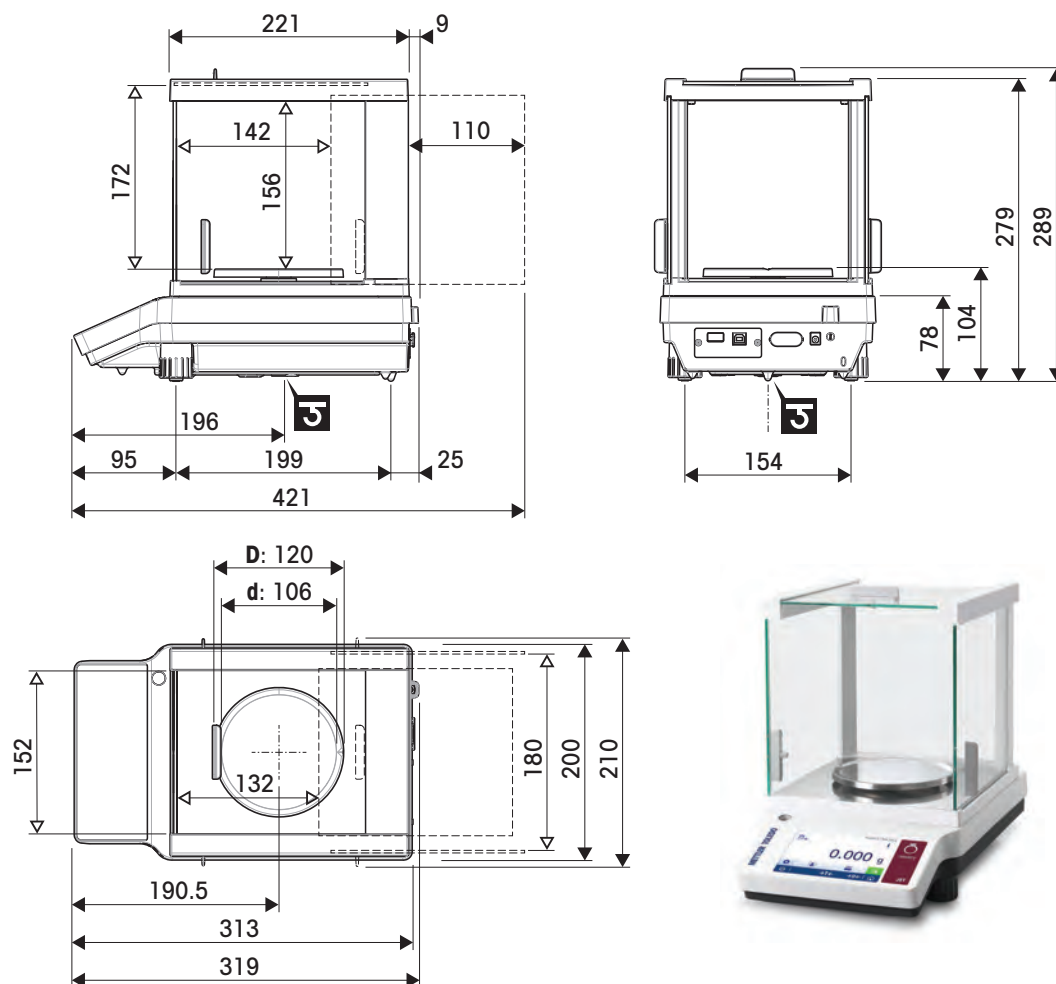
Models: JET503C, JET703C, JET1103C, JET1603C



	Outer dimensions [mm]	
	Clear dimensions [mm]	
D	Outer diameter of the weighing pan.	
d	Diameter of the flat area of the weighing pan	
	Position of the weighing hook axle	
H	JET503C, JET703C, JET1103C	192 mm
	JET1603C	154 mm
h	JET503C, JET703C, JET1103C	74 mm
	JET1603C	81 mm

11.3.2 Gold balances with a readability of 1 mg / 10 mg

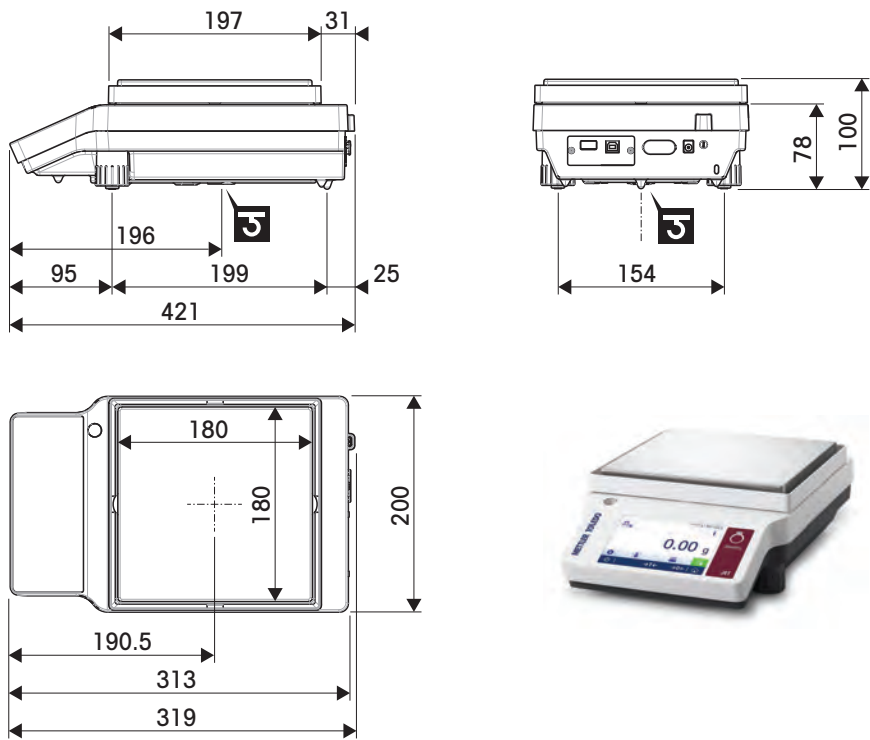
Models: JET303G, JET603G, JET1003G, JET602G/AED, JET1002G/AED





↔	Outer dimensions [mm]
◁ ▷	Clear dimensions [mm]
D	Outer diameter of the weighing pan.
d	Diameter of the flat area of the weighing pan
3	Position of the weighing hook axle

11.3.3 Gold balances with a readability of 10 mg and 100 mg

Models: JET1002G, JET3002G, JET4002G, JET6002G, JET12002G, JET6001G, JET2001G/AED, JET3001G/AED, JET6001G/AED



	Outer dimensions [mm]
	Position of the weighing hook axle

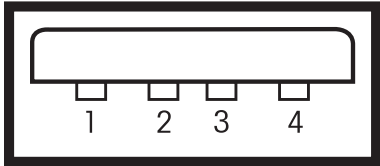
11.4 Interface specifications

11.4.1 RS232C interface

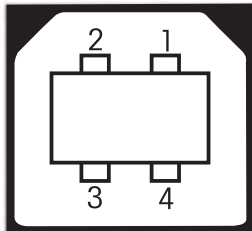
Each balance is equipped with an RS232C Interface as standard for the attachment of a peripheral device, e.g., printer or computer.

Schematic	Item	Specification
	Interface type	Voltage interface according to EIA RS232C/ DIN66020 CCITT V24/V.28)
	Max. cable length	15 m
	Signal level	Outputs: +5 V ... +15 V (RL = 3–7 kΩ) –5 V ... –15 V (RL = 3–7 kΩ) Inputs: +3 V ... +25 V –3 V ... –25 V
	Connector	Sub-D, 9-pole, female
	Operating mode	Full duplex
	Transmission mode	Bit-serial, asynchronous
	Transmission code	ASCII
	Baud rates	600, 1200, 2400, 4800, 9600, 19200, 38400 (software selectable)
	Bits/parity	7-bit/none, 7-bit/even, 7-bit/odd, 8-bit/none (software selectable)
	Stop bits	1 stop bit
	Handshake	None, XON/XOFF, RTS/CTS (software selectable)
	End-of-line	<CR><LF>, <CR>, <LF> (software selectable)
	Power supply for 2nd display	+ 12 V, max 40 mA (software selectable, 2nd display mode only)

11.4.2 USB-A port

Schematic	Item	Specification
	Standard	In conformity with USB specifications revision 2.0
	Speed	Full-speed 12 Mbps (requires shielded cable)
	Power usage	Max. 500 mA
	Connector	Type A
	Pin assignment	1 VBUS (+5 V DC)
		2 D- (Data -)
		3 D+ (Data +)
		4 GND (Ground)
	Shell	Shield

11.4.3 USB-B port

Schematic	Item	Specification										
	Standard	In conformity with USB specifications revision 2.0										
	Speed	Full-speed 12 Mbps (requires shielded cable)										
	Function	CDC (Communication Device Class) serial port emulation										
	Power usage	Suspended device: Max 10 mA										
	Connector	Type B										
<table><tr><td>1</td><td>VBUS (+5 VDC)</td></tr><tr><td>2</td><td>D- (Data -)</td></tr><tr><td>3</td><td>D+ (Data +)</td></tr><tr><td>4</td><td>GND (Ground)</td></tr><tr><td>Shield</td><td>Shield</td></tr></table>	1	VBUS (+5 VDC)	2	D- (Data -)	3	D+ (Data +)	4	GND (Ground)	Shield	Shield		
1	VBUS (+5 VDC)											
2	D- (Data -)											
3	D+ (Data +)											
4	GND (Ground)											
Shield	Shield											

11.4.4 MT-SICS interface commands and functions

Many of the instruments and balances used have to be able to integrate into a complex computer or data acquisition system.

To easily integrate a balance into a system and utilize its capacity to the full extent, most balance functions are also available as corresponding commands via the data interface.

All new METTLER TOLEDO balances launched on the market support "METTLER TOLEDO Standard Interface Command Set" (MT-SICS). The commands available depend on the functionality of the balance.

For further information, please contact your METTLER TOLEDO representative.




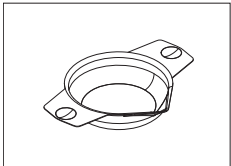
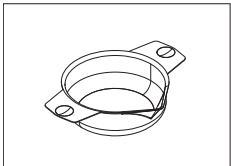
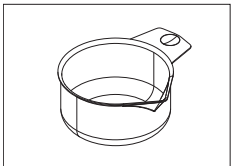


Refer to the MT-SICS Reference Manual which can be downloaded from the Internet at

► www.mt.com/library

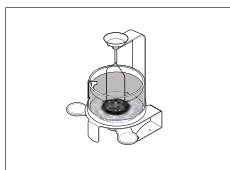
12 Accessories and Spare Parts

12.1 Accessories

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

	Description	Part No.
Printers		
	RS-P25/11 printer with RS232C connection to balance (with date, time and applications)	30398875
	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
Carat pans		
	Carat pan S, ø 80 mm / height 20 mm (set of 10 units)	12102645
	Carat pan M, ø 90 mm / height 30 mm (set of 10 units)	12102646
	Carat pan L, ø 90 mm / height 45 mm (set of 10 units)	12102647
Cables for RS232C interface		
	USB-RS232 cable (to connect a balance via RS232C to a USB port)	64088427
Cables for USB interface		
	USB 2.0 High-speed cable to connect balance with PC (USB A to USB B), length = 1 m	30241476

Density determination



Density Kit Advanced & Standard for balance models with a readability of 0.1 mg / 1 mg

30535760

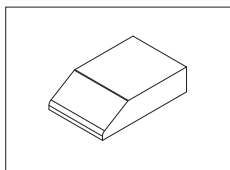
Auxiliary displays



RS232 auxiliary display AD-RS-J7

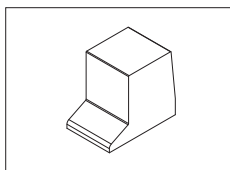
12122380

Dust covers



Dust cover for models without draft shield

30029051



Dust cover for models with draft shield low (170 mm)

30029050

Anti-theft devices



Anti-theft cable with lock

11600361

Software



EasyDirect Balance is an application software to collect, analyze, store and export balance measurement and device data on PC.

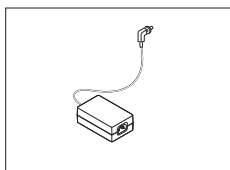
License EasyDirect Balance for 10 Instruments

30540473

License EasyDirect Balance for 3 Instruments

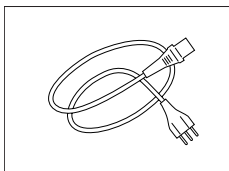
30539323

Power supplies



AC/DC adapter (without power cable) 100–240 V AC, 0.8 A, 50/60 Hz, 12 V DC 2.5 A

11107909



Country-specific 3-Pin power cable with grounding conductor.

Power cable AU	00088751
Power cable BR	30015268
Power cable CH	00087920
Power cable CN	30047293
Power cable DK	00087452
Power cable EU	00087925
Power cable GB	00089405
Power cable IL	00225297
Power cable IN	11600569
Power cable IT	00087457
Power cable JP	11107881
Power cable TH, PE	11107880
Power cable US	00088668
Power cable ZA	00089728

Adjustment weights

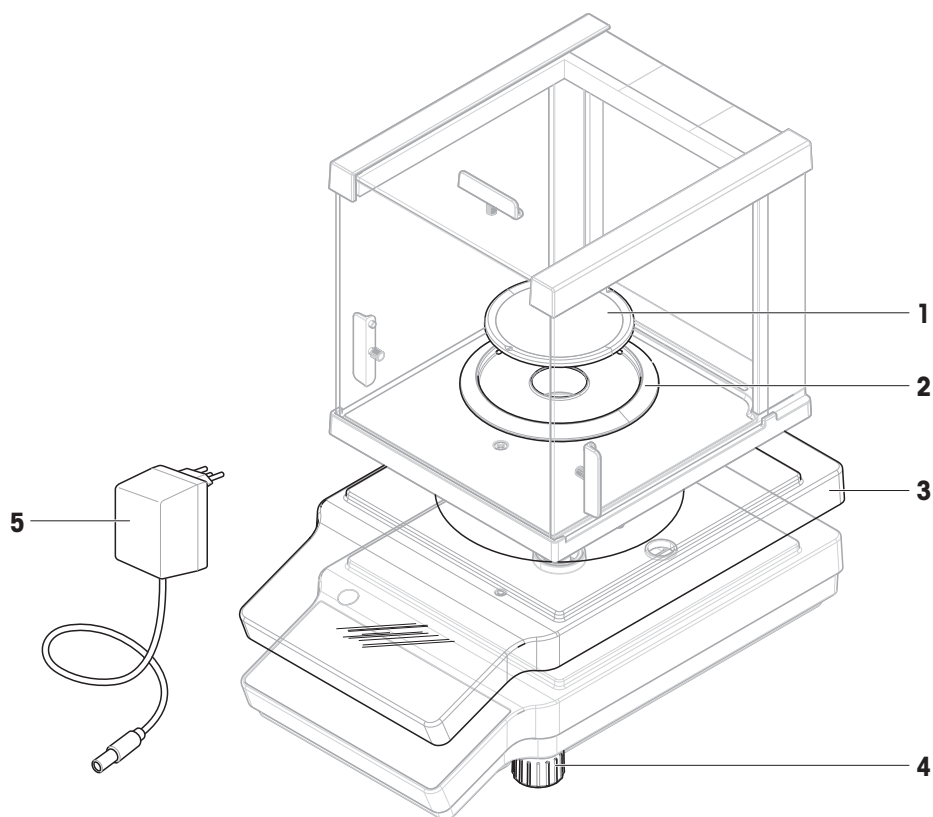


OIML / ASTM Weights (with calibration certificate)
see <http://www.mt.com/weights>

12.2 Spare parts

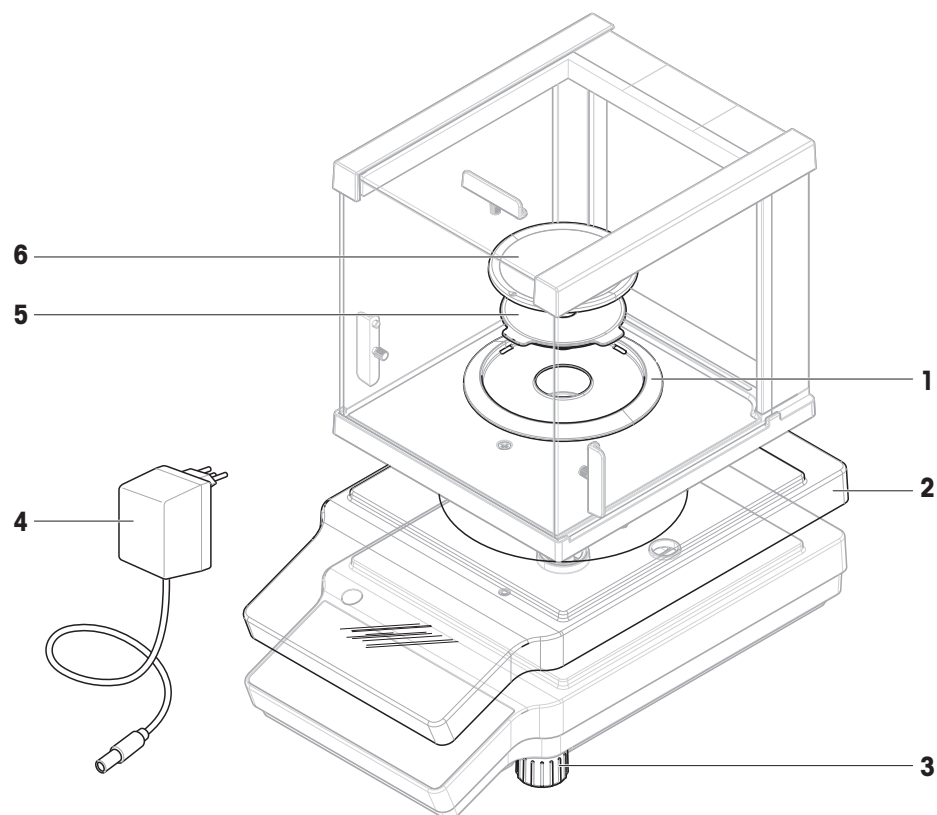
Spare parts are parts that are delivered with the original instrument but that can be replaced, if needed, without the help of a service technician.

12.2.1 Balances with a readability of 0.001 ct / 0.1 mg with draft shield



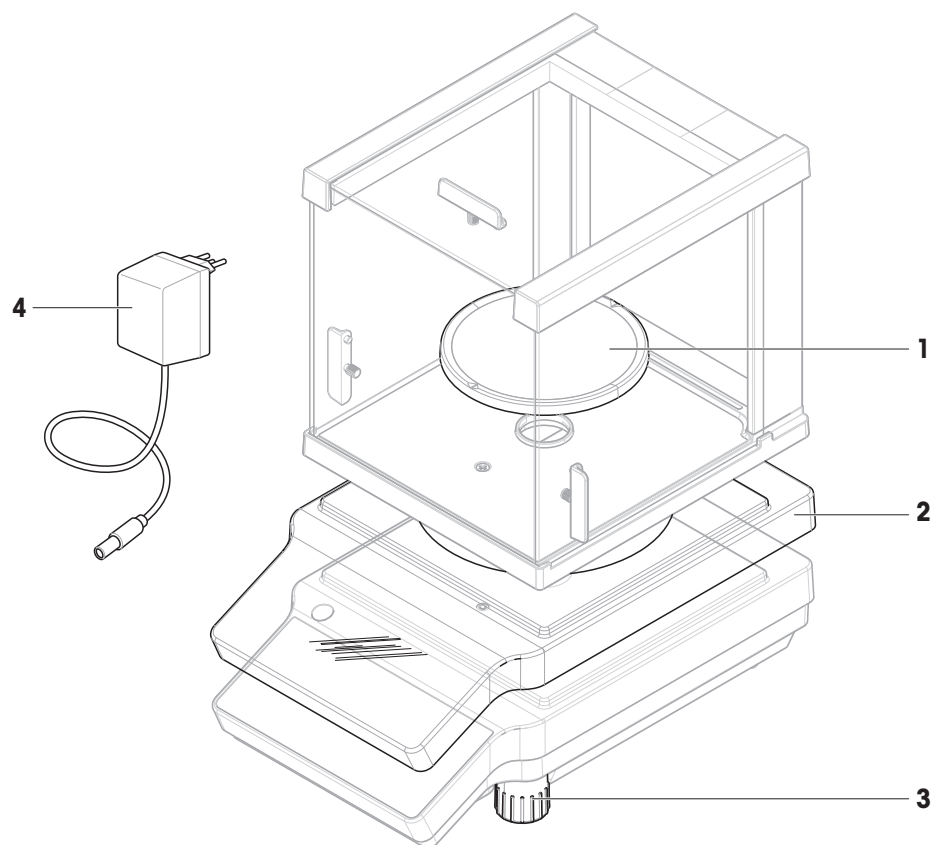
	Order no.	Designation	Remarks
1	30037737	Weighing pan Ø 90 mm	Including: Pan support
2	12122043	Draft protection ring	–
3	30241549	Protective cover	–
4	30037744	Leveling foot	Including: 2 leveling feet
5	11120270	AC/DC adapter universal	Including: Plug for all countries

12.2.2 Balances with a readability of 0.001 ct / 0.1 mg with draft shield and pan support



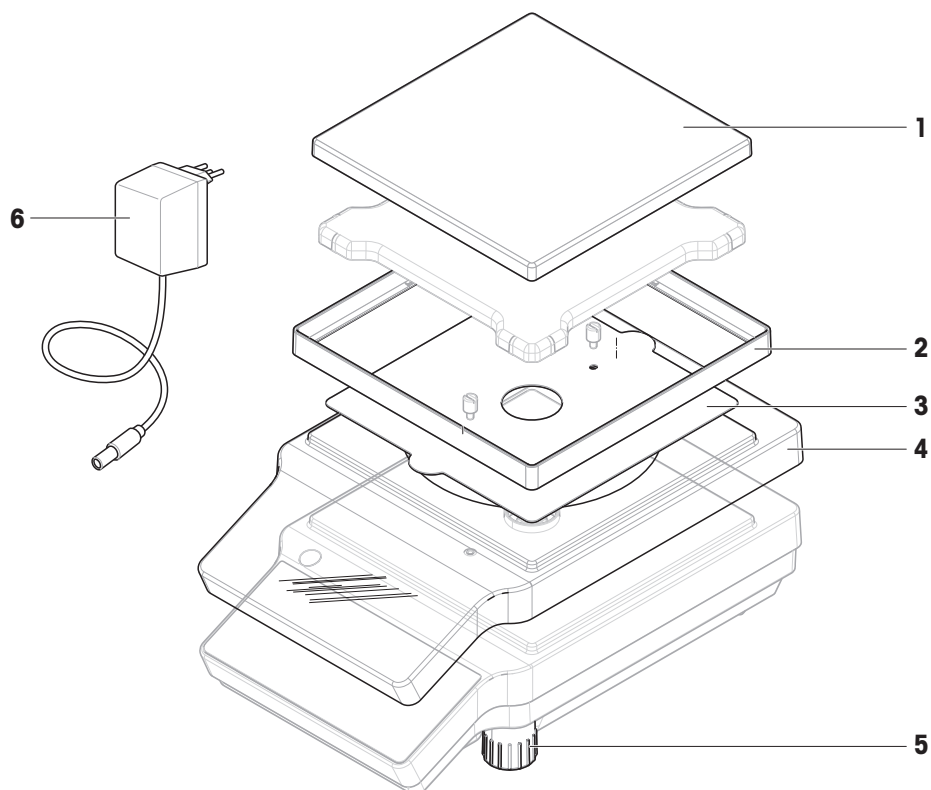
	Order no.	Designation	Remarks
1	12122043	Draft protection ring	—
2	30241549	Protective cover	—
3	30037744	Leveling foot	Including: 2 leveling feet
4	11120270	AC/DC adapter universal	Including: Plug for all countries
5	30535716	Pan support Ø 90 mm	—
6	12122010	Weighing pan Ø 90 mm	Excluding: Pan support

12.2.3 Balances with a readability of 1 mg / 10 mg with draft shield



	Order no.	Designation	Remarks
1	30042889	Weighing pan Ø 120 mm	Including: Pan support
2	30241560	Protective cover	–
3	30037744	Leveling foot	Including: 2 leveling feet
4	11120270	AC/DC adapter universal	Including: Plug for all countries

12.2.4 Balances with a readability of 10 mg / 100 mg with square weighing pan and draft shield element



	Order no.	Designation	Remarks
1	30535713	Weighing pan 180 x 180 mm	Excluding: Pan support
2	30042897	Draft protection frame 180 x180 mm	—
3	30042901	Bottom plate	Excluding: Screws
4	30241560	Protective cover	—
5	30037744	Leveling foot	Including: 2 leveling feet
6	11120270	AC/DC adapter universal	Including: Plug for all countries

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GWP® is the global weighing standard, ensuring consistent accuracy of weighing processes, applicable to all equipment from any manufacturer. It helps to:

- Choose the appropriate balance or scale
- Calibrate and operate your weighing equipment with security
- Comply with quality and compliance standards in laboratory and manufacturing

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