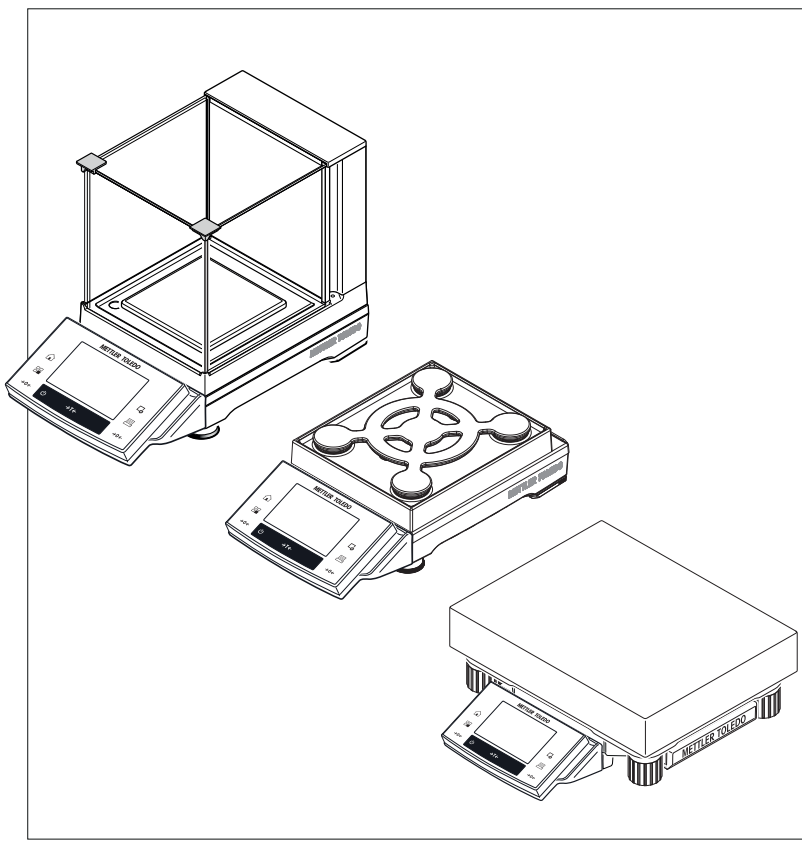


Precision Balances

XS models



METTLER TOLEDO

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1 Introduction

Thank you for choosing a METTLER TOLEDO balance.

The balances offers numerous weighing and adjustment options with exceptional operating convenience.

The different models have different characteristics regarding equipment and performance. Special notes in the text indicate where this makes a difference to operation.

METTLER TOLEDO is a leading manufacturer of balances for laboratory and production use as well as analytical measuring instruments. A globally present customer service network with highly trained personnel is always available to assist with the selection of accessories or provide advice on the optimal use of the balance.

The balance conforms to current standards and directives. It supports requirements, work techniques and protocols as specified by all international quality assurance systems, e.g. GLP (Good Laboratory Practice), GMP (Good Manufacturing Practice). The balance has a CE Declaration of Conformity and METTLER TOLEDO, as the manufacturer, is certified to ISO 9001 and ISO 14001. This provides the assurance that your capital investment is protected in the long term by high product quality and a comprehensive service package (repairs, maintenance, servicing, adjustment service).

Finding more information

► www.mt.com/xs-precision

More detailed information is in the Operating Instructions on the CD-ROM.

Software version

These operating instructions refer to the originally installed firmware (software) version V 5.40.

2 Safety Information

2.1 Definition of signal warnings and symbols

Safety notes are indicated by signal words and warning symbols and contain warnings and information about safety issues. Ignoring safety notes can lead to personal injury, damage to the instrument, malfunctions and erroneous results.

Signal words

| | |
|------------------|---|
| WARNING | for a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided. |
| CAUTION | for a hazardous situation with low risk, resulting in damage to the device or the property or in loss of data or minor or medium injuries if not avoided. |
| Attention | (no symbol) for important information about the product. |
| Note | (no symbol) for useful information about the product. |

Warning symbols



General hazard



Electrical shock

2.2 Product safety information

Intended use

Your balance is used for weighing. Use the balance exclusively for this purpose. Any other type of use and operation beyond the limits of technical specifications without written consent from Mettler-Toledo AG, is considered as not intended.



It is not permitted to use the instrument in explosive atmosphere of gases, steam, fog, dust and flammable dust (hazardous environments).

General safety information

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

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

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

Staff safety

These operating instructions must be read and understood before using the balance. These operating instructions must be retained for future reference.

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

Safety notes



WARNING

Risk of electric shock

Use only the original universal AC adapter delivered with your balance, and check that the voltage printed on it is the same as your local power supply voltage. Only plug the adapter into a socket which is grounded.



CAUTION

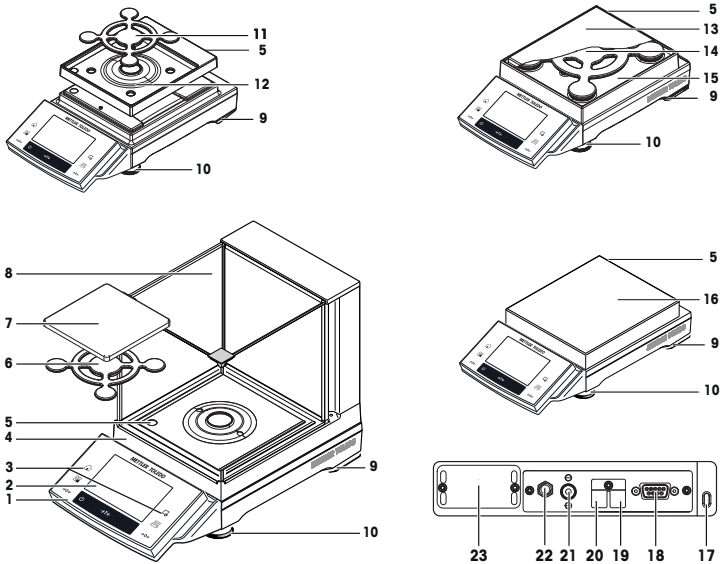
Damage to the balance

- a) Only use indoors in dry locations.
- b) Do not use pointed objects to operate the touch screen!
The balance is of a very sturdy design, but is still a precision instrument. It must be handled with care.
- c) Do not open the balance:
The balance contains no user-serviceable parts. In the event of problems, please contact a METTLER TOLEDO representative.
- d) Only use METTLER TOLEDO original accessories and peripheral devices for the balance.
These are specifically designed for the balance.

3 Design and Function

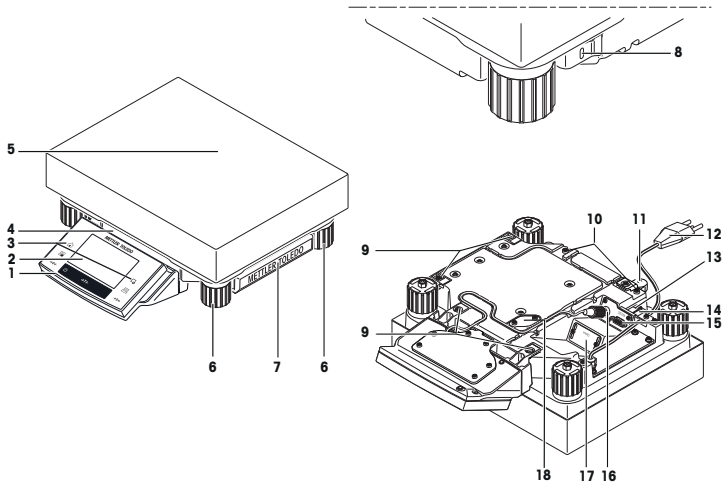
3.1 Overview

3.1.1 S weighing platform



| | | | |
|----|--|----|---|
| 1 | Terminal | 2 | Display "Touch screen" |
| 3 | Operating keys | 4 | Type designation |
| 5 | Level indicator | 6 | SmartPan for 1 mg models with draft shield |
| 7 | Weighing pan for 1 mg models with draft shield | 8 | Glass draft shield |
| 9 | Safety feet | 10 | Foot screws |
| 11 | SmartPan for 1 mg models | 12 | Drip tray for 1 mg models |
| 13 | Weighing pan for 5 mg and 10 mg models | 14 | SmartPan for 5 mg and 10 mg models |
| 15 | Drip tray for 5 mg and 10 mg models | 16 | Weighing pan for 0.1 g models |
| 17 | Fastening point for anti-theft device | 18 | RS232C serial interface |
| 19 | Aux 1 (connection for "ErgoSens", hand- or foot-switch) | 20 | Aux 2 (connection for "ErgoSens", hand- or foot-switch) |
| 21 | Fastening for auxiliary display stand or terminal stand (optional) | 22 | Socket for AC adapter |
| 23 | Slot for second interface (optional) | | |

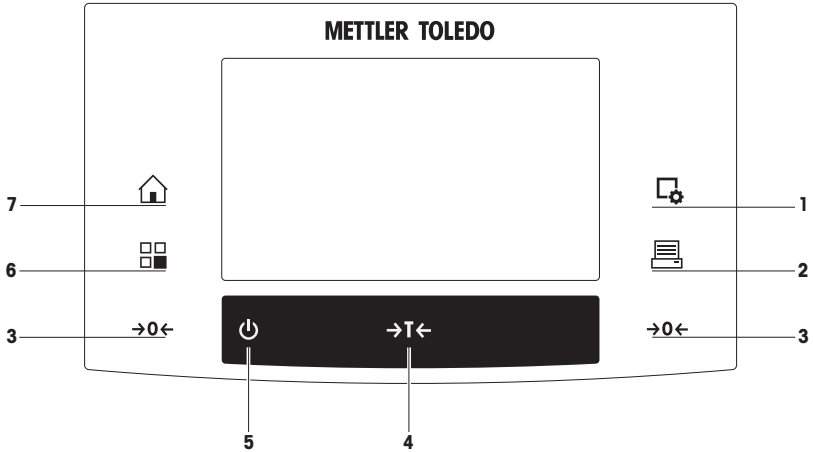
3.1.2 L weighing platform



| | | | |
|----|---|----|--|
| 1 | Terminal | 2 | Display "Touch screen" |
| 3 | Operating keys | 4 | Type designation |
| 5 | Weighing pan | 6 | Foot screws |
| 7 | Cover | 8 | Fastening point for anti-theft device |
| 9 | Points of attachment for terminal or cover | 10 | Fastening for terminal stand (optional) |
| 11 | Level indicator | 12 | Power cable |
| 13 | Aux 1 (connection for "ErgoSens", hand- or foot-switch) | 14 | Aux 2 (connection for "ErgoSens", hand- or foot-switch) |
| 15 | RS232C serial interface | 16 | Connector for terminal cable |
| 17 | Slot for second interface (optional) | 18 | Cover plate for below-the-balance weighing (hook optional) |

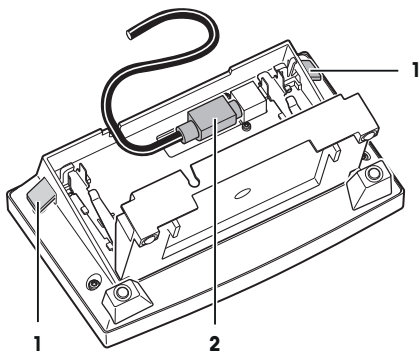
3.1.3 Terminal

Key assignments and terminal connection.



1: Front view

| | | Designation | Explanation |
|---|--|-----------------------------|--|
| 1 | | Configuration | For displaying menus for the configuration of a current application. The application can be adjusted to a specific task via numerous settings. |
| 2 | | Print | This key is used to transfer data via the interface, e.g. to a printer. Other devices, e.g. a PC can also be connected. The data to be transferred can be freely defined. |
| 3 | | Zeroing | This key is used for setting a new zero point manually (only required if the balance is used for normal weighings). |
| 4 | | Tare | This key is used to tare the balance manually (only necessary for normal weighings). When the balance has been tared, the Net symbol is displayed to indicate that all displayed weights are net. |
| 5 | | On/Off | For switching the balance on and off (standby mode). Note It is recommended not to disconnect the balance from the power supply unless it is not going to be used for an extended period. |
| 6 | | Select application / System | This key is used to select a required application. |
| 7 | | Home | This key takes you directly from any menu level back to the active application. |



| | | | |
|---|--------|---|------------------------------------|
| 1 | Levers | 2 | System connection (terminal cable) |
|---|--------|---|------------------------------------|

3.2 User interface

3.2.1 Display

The illuminated display of the terminal is a touch screen, i.e. a touch-sensitive screen. It can be used for displaying data, entering settings and selecting functions by tapping the screen.

Note

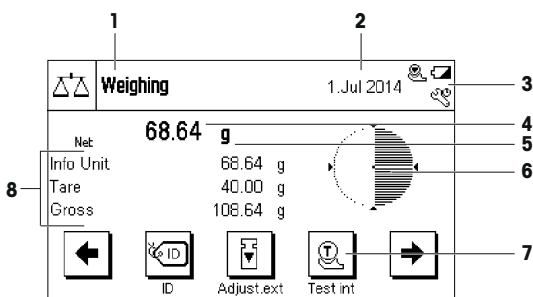
Depending on country-specific requirements, non-calibrated decimal places are highlighted on approved balances.



CAUTION

Do not touch the touch screen with pointed or sharp objects!

This may damage the touch screen.



Note

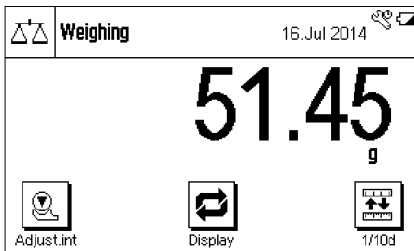
The factory setting of the balance displays the weighing result at a large size, without SmartTrac and information fields.

| | Designation | Explanation |
|---|------------------|---|
| 1 | Application name | Select application. The application menu can be selected by tapping this zone. This menu can also be displayed by pressing [F1]. |
| 2 | Date | The date can be changed by tapping this zone. |
| 3 | Status icons | These status icons indicate special balance statuses (e.g. service due, adjustment required, battery replacement, out of level). If you tap the icon, the function is explained. |

| | | |
|---|--------------------|---|
| 4 | Weight value | Tapping the weight displays a window showing the result in a large format. This is useful for reading a weight from a certain distance. |
| 5 | Weighing unit | The required weighing unit can be changed by tapping the weighing unit, e.g. from mg to g . |
| 6 | SmartTrac | SmartTrac is a graphic weighing-in aid, which shows at a glance an already used and still available weighing range. |
| 7 | Function keys | This area is reserved for Function Keys enabling direct access to frequently required functions and application settings. If more than 5 function keys are activated, these can be selected with the arrow keys. |
| 8 | Information fields | This area is used for displaying additional information (information fields) relating to an active application. |

Large display

By pressing the function key **[Display]**, the weighing result can be displayed larger and still allow the use of the terminal function keys.

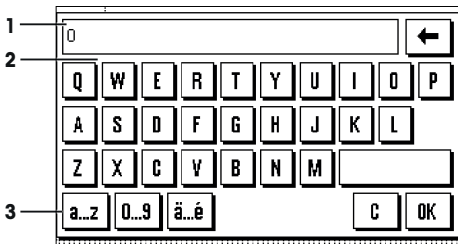


Screen saver

If the balance is not used for 15 minutes, the display is automatically dimmed and the pixels are inverted about every 15 seconds. When the balance is used again (e.g. load weight, press key), the display returns to a normal state.

3.2.2 Input dialog boxes

The keyboard dialog box is used to enter characters such as letters, numbers and special characters.



| | Designation | Explanation |
|---|-------------|---|
| 1 | Data field | Displays (entered) alphanumeric and numeric characters. |
| 2 | Keyboard | Data input area |
| 3 | Selection | Select various keyboard layouts. |

- 1 Enter the designation.
- 2 Confirm with **[OK]**.

| | Function |
|--|---|
| | Delete last character Tap once to place the cursor at the end of the data field. |

3.2.3 Firmware

The firmware controls all balance functions. It enables the balance to be adjusted to a specific working environment.

The firmware is divided as follows:

- System settings
- Applications
- Application-specific settings

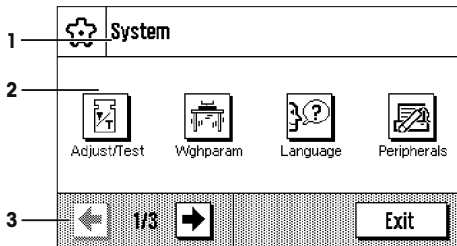
Note

A displayed menu can be left at any time by repressing the same menu key.

3.2.3.1 System settings

System settings (e.g. settings for peripheral devices) are independent of the applications and apply to the entire weighing system.

Navigation: [F5] > [System]



| | Designation | Explanation |
|---|---------------|---|
| 1 | Title bar | The title bar displays elements for user orientation and information. |
| 2 | Contents area | The contents area is the main work area for menus and applications. The contents depend on the specific application or initiated action. |
| 3 | Action bar | The action bar contains action buttons for performing specific actions required in the active dialog box and are available (e.g. [Exit], [STD], [C], [OK]). |

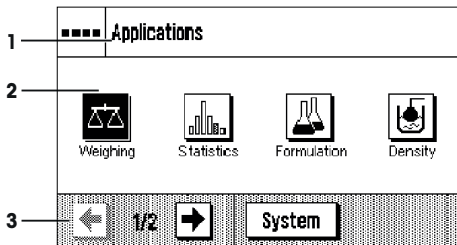
1 Settings can be changed by tapping the respective button.

2 To leave the settings, tap [Exit].

3.2.3.2 Applications

Applications are firmware modules for performing specific weighing tasks. The balance is delivered with various applications pre-installed. After switching on the balance, the last used application are loaded. The applications are available under the [F5] key. Instructions for working with standard applications are provided in the respective sections.

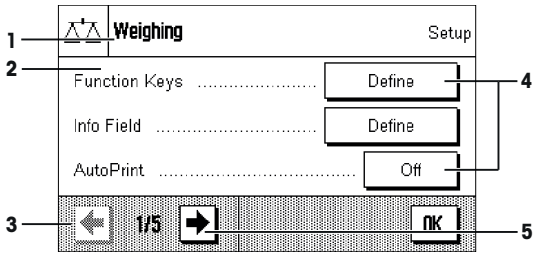
Navigation: [F5]



Application-specific settings

These settings can be used to adjust the applications. The available setting options depend on the selected application. Pressing [F4] opens the multipage menu with settings for a currently active application. Information on the individual setting options is provided in the section relating to the respective application.

Navigation: [←]



| | Designation | Explanation |
|---|---------------|---|
| 1 | Title bar | The title bar displays elements for orientation and information. |
| 2 | Contents area | The contents area is the main work area for menus and applications. The contents depend on the specific application or initiated action. |
| 3 | Action bar | The action bar contains action buttons for performing specific actions required in the active dialog box and are available (e.g. [Exit], [STD], [C], [OK]). |
| 4 | Button | Edit/Select settings (e.g. [Define], [On], [Off]). The contents depend on the application. |
| 5 | Arrow | The arrow buttons are used to page forward or back. |

- 1 Settings can be changed by tapping the respective button.
- 2 Confirm with [OK].
- 3 To leave the settings, select [Exit].
- 4 To change the system settings, tap [System].

3.2.4 Security system

The balance has a comprehensive security system with which individual access rights can be defined at administrator. Access to protected menu areas requires the entry of a password. On delivery of the balance, a password is defined. The menu settings are chosen, so that you have unrestricted access to all system settings. When an password protected menu area is selected, an alphanumeric keyboard is initially displayed for entry of the password.



CAUTION

Remember passwords!

- Protected menu areas cannot be accessed without password.
- a) Note passwords and keep them in a safe place.

- 1 Enter your password.
 - Case sensitive, tap the [a...z] and [A...Z] button to switch between upper and lower case.
 - To enter numbers, tap the [0...9] button.
 - Incorrect entries can be deleted character by character with the arrow key [←].

Note

Entry can be interrupted at any time by tapping [C].

- 2 Enter the password (for security reasons, this is displayed with asterisks instead of plain text) and confirm with [OK].
 - ⇒ If the password are correct, the selected menu area is displayed or the required action initiated. If these are incorrect, an error message is displayed with a request to enter them again.

4 Installation and Putting into Operation



WARNING

Electrical shock

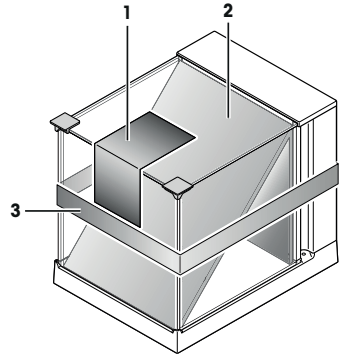
The balance must be disconnected from the power supply when carrying out all setup and mounting work.

4.1 Unpacking

Open the packaging and carefully remove all components.

4.1.1 Unpacking the "Magic Cube" draft shield

- 1 Place the draft shield horizontally on a clean surface.
- 2 Remove the adhesive tape (1).
- 3 Open the draft shield cover.
- 4 Pull the cardboard (2) upwards out of the weighing chamber.
- 5 When removing the cardboard (2), hold the U-shaped draft shield glass so that it is not pulled away with it.
- 6 Close the draft shield cover.
- 7 Release the holding strip (3) and pull it upwards to remove it.



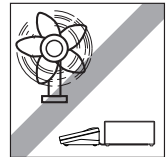
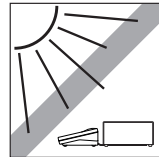
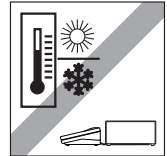
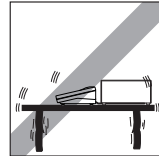
4.2 Location

An optimal location will ensure accurate and reliable operation of the balance. The surface must be able to safely take the weight of the balance when fully loaded. The following local conditions must be observed:

Note

If the balance is not horizontal at the outset, it must be leveled during commissioning.

- The balance must only be used indoors and up to a maximum altitude of 4,000 m above sea level.
- Before switching on the balance, wait until all parts are at room temperature (+5 to 40 °C).
The humidity must be between 10% and 80% non-condensing.
- The power plug must be accessible at all times.
- Firm, horizontal and vibration-free location.
- Avoid direct sunlight.
- No excessive temperature fluctuations.
- No strong drafts.



4.3 Assembling the balance

4.3.1 Installing the "Magic Cube" draft shield and weighing pan to the S weighing platform

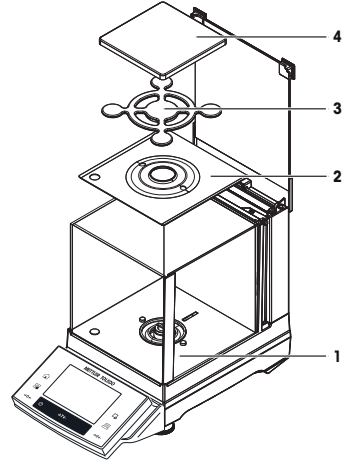
Balances with readability of 1 mg, S platform with draft shield and SmartPan

- 1 Place the following components on the balance in the specified order:
- 2 Place draft shield (1) with closed cover, and then open.

Attention

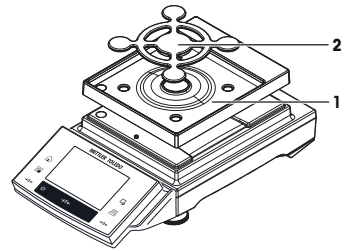
The U-shaped draft shield glass is not permanently connected to the draft shield housing.

- 1 Always close the cover before picking up the draft shield.
 - 2 Hold the entire draft shield by the housing at the back.
 - 3 Always hold the draft shield with both hands and keep in a horizontal position.
- Bottom plate (2).
 - SmartPan (3).
 - Weighing pan (4) (optional).



Balances with readability of 1 mg with SmartPan

- Place the following components on the balance in the specified order:
- Drip tray (1)
- SmartPan (2)

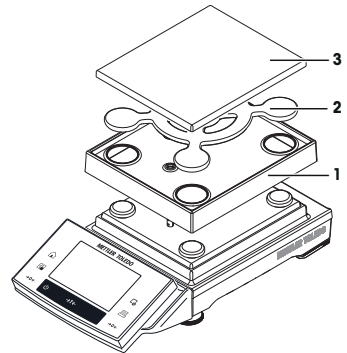


Balances with readability of 10 mg, S platform with SmartPan

- Place the following components on the balance in the specified order:
- Drip tray (1).
- SmartPan (2).
- Standard weighing pan (3) (optional).

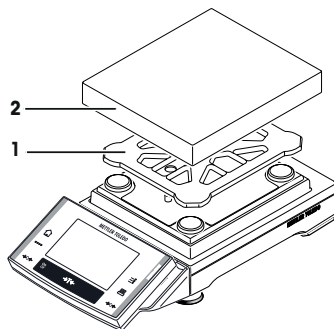
Note

For the minimization of the air drafts, faster stabilization time and improved reproducibility, work without the standard weighing pan.



Balances with readability of 0.1 g, S platform

- Place the following components on the balance in the specified order:
 - Weighing pan support (1).
 - Weighing pan (2).



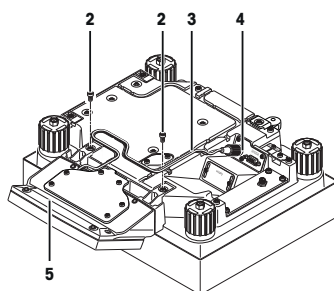
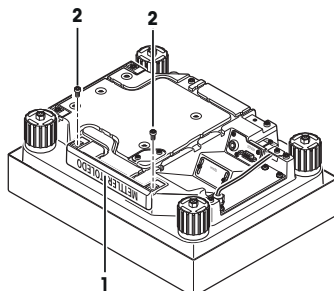
4.3.2 Placing the terminal on the L weighing platform

The terminal can be attached to the long or short side of the balance.

- 1 Mount the weighing pan.
- 2 Carefully turn the weighing platform over onto the weighing pan.

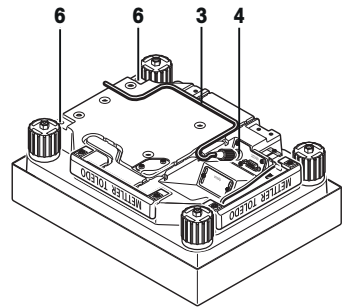
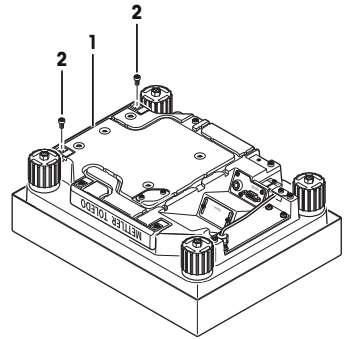
Attaching the terminal to the long side

- 1 Dismantle the cover (1) by removing the 2 screws (2).
- 2 Attach the terminal to the terminal support (5) as shown, using the screws (2) from the cover that was removed.
- 3 Insert the terminal cable (3) into the cable channel, as shown.
- 4 Screw the connector of the terminal cable into the socket (4).
- 5 Turn the balance back over into position.



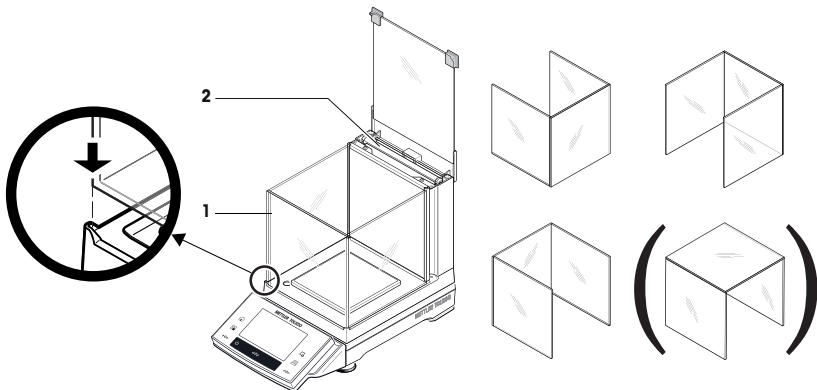
Attaching the terminal to the short side

- 1 Dismantle the cover (1) by removing the 2 screws (2).
- 2 Attach the terminal with terminal support to the points of attachment (6) with the screws (2).
- 3 Insert the terminal cable (3) into the cable channel, as shown.
- 4 Screw the connector of the terminal cable into the socket (4).
- 5 Turn the balance back over into position.



4.3.3 Setting options with the draft shield glass (1 mg Models)

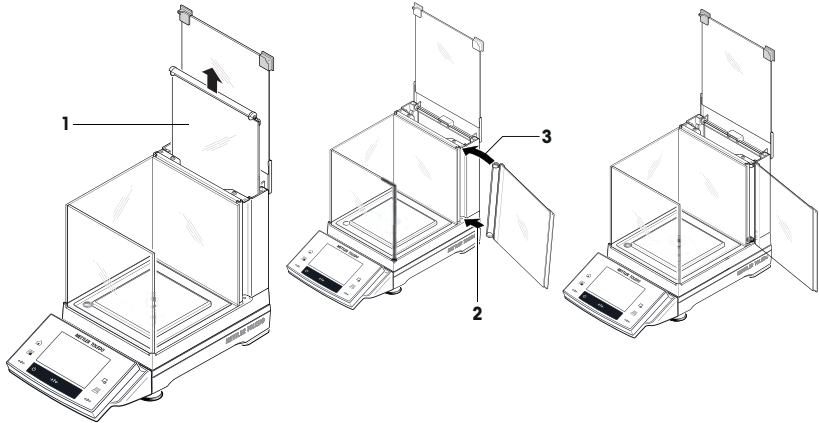
The U-shaped draft shield glass (1) supports different setting options. The draft shield housing contains an additional draft shield pane (2), which can be used as required.



4.3.4 Using the additional draft shield door (1 mg Models)

- 1 Open the draft shield cover.
- 2 Pull the draft shield door (1) upwards out of the rear panel.
- 3 Insert the draft shield door into the housing from the side (left or right).
- 4 First position the draft shield door at the bottom (2) and then swivel it upwards (3) until you **feel it snap into place, see diagram.**
Attention

Check that the draft shield door is inserted correctly. The door must close easily. When transporting the balance, except for the terminal, also hold the draft shield, as this is fitted and not permanently connected to the weighing platform.



4.4 Connecting the balance



WARNING

Risk of electric shock

- a) To connect the balance, only use the supplied three-core power cable with equipment grounding conductor.
- b) Only connect the balance to a three-pin power socket with earthing contact.
- c) Only standardized extension cable with equipment grounding conductor must be used for operation of the balance.
- d) Intentional disconnection of the equipment grounding conductor is forbidden.

S weighing platform

The balance is supplied with an AC adapter and country-specific power cable. The AC adapter is suitable for use with the following voltage range:

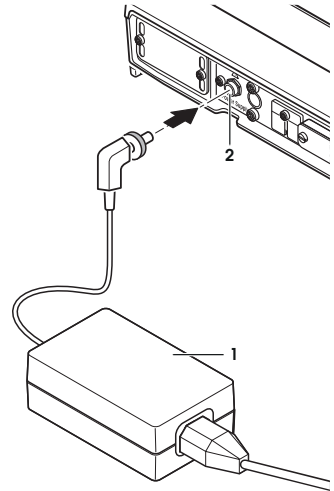
100 – 240 V AC, 50/60 Hz.

Attention

- Check whether your local power supply falls within this range. If this is not the case, under no circumstances connect the AC adapter to the power supply, but contact a METTLER TOLEDO representative.
- The power plug must be accessible at all times.
- Prior to use, check the power cable for damage.
- Route the cable in such a way that it cannot be damaged or cause a hindrance when working.
- Ensure that no liquid comes into contact with the AC adapter.

Connecting S weighing platform

- Balance and terminal are at the final location.
- 1 Connect the AC adapter (1) to the connection socket (2) at the rear of the balance.
 - 2 Connect the AC adapter (1) to the power supply.
- ⇒ The balance performs a self-test after connection to the power supply and is then ready to use.



L weighing platform

- The balance is supplied with a country-specific power cable.
- Check whether your local power supply falls within this range. If this is not the case, under no circumstances connect the balance to the power supply, but contact a METTLER TOLEDO representative.
- The power plug must be accessible at all times.
- Prior to use, check the power cable for damage.
- Route the cable in such a way that it cannot be damaged or cause a hindrance when working.
- Ensure that the connectors can never come into contact with liquids.

Connecting L weighing platform

- Balance and terminal are at the final location.
 - Connect the balance to the power supply.
- ⇒ The balance performs a self-test after connection to the power supply and is then ready to use.

4.5 Setting up the balance

4.5.1 Weighing for the first time

After commissioning the new balance, the first weighing can be carried out. This will also familiarize you with the operation of the balance.

4.5.1.1 Switching on the balance

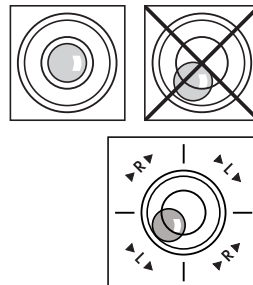
- Balance is connected to the power supply.
 - Terminal and balance are interconnected.
 - To switch on, press [⏻].
 - ⇒ Display appears.
- ⇒ Balance is ready to use.



4.5.1.2 Leveling the balance

Balances with readability of 1 mg, S platform and L platform

- 1 Align the balance horizontally.
- 2 Turning the leveling screws of the housing until the air bubble is in the inner circle of the level indicator.
 - ⇒ The position of the air bubble illustrates which leveling screw you need to turn (L = left leveling screw, R = right leveling screw) and in which direction so that the air bubble moves to the center.



Example

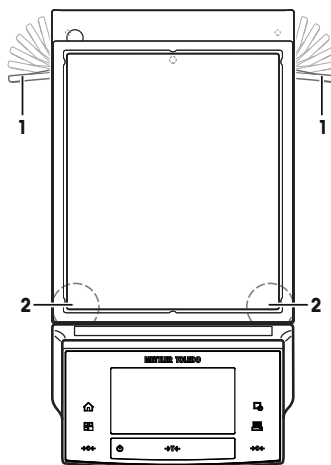
In this example, turn the left leveling screw counterclockwise.

Balances with safety feet

- 1 Remove the clamps (1) for the safety feet by turning them outwards.
 - Attention**
Turn the clamps (1) outwards as far as they will go (~ 90°), so that the safety feet can move freely.
- 2 Now level the balance by turning both leveling screws (2) as shown above until the air bubble is in the inner circle of the level indicator.
- 3 Secure the safety feet by turning the clamps (1) inwards as far as they will go.

Note

The balance must be leveled and adjusted each time it is moved to a new location.



4.5.1.3 Performing a simple weighing

To perform a simple weighing, only the keys in the lower part of the terminal are required. The balance has separate keys for zeroing [**→0←**] and taring [**→T←**].

Zeroing

- Press [**→0←**].

⇒ Zeroing

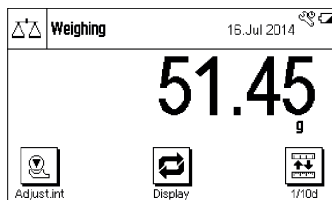
After zeroing, all weights also the tare weight apply to this new zero point and the following apply: tare weight = 0, net weight = gross weight = 0.

Taring

Note

A negative weight is not permitted. An error message is generated. When the stability detector icon extinguishes (small ring left of the weight display), the indication is stable. The weight is displayed.

- If a weighing container is used, the balance must first be set to zero.
 - 1 Place the container on the balance.
 - 2 Press [→T←].
 - ⇒ The balance is tared.
 - ⇒ The weight of the container is set as the new tare weight and the previous tare (if available) is overwritten.
 - ⇒ The **Net** display signals that all indicated weights are net weights.



Congratulations!

The first weighing is now complete. The following sections contain further information about the extensive functions and applications of this balance.

4.6 Transporting the balance

Observe the following instructions to transport your balance to a new location.

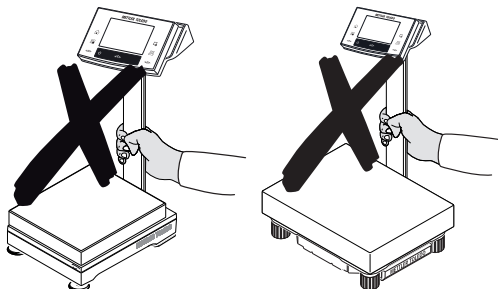
Switching off the balance

- 1 Press and hold [⏻] until **Off** appears in the display.
- 2 Disconnect the balance from the power supply.
- 3 Disconnect all interface cables.



Attention

Always carry the body of the balance. Do not hold the balance by the stand.



5 Maintenance

5.1 Cleaning

Periodically clean the weighing pan, drip tray/draft shield element (depending on the model), draft shield (depending on the model), housing and terminal of your balance using a damp cloth. The maintenance interval depends on your standard operating procedure (SOP).

Please observe the following notes



WARNING

Risk of electric shock

- a) Disconnect the balance from the power supply prior to cleaning and maintenance.
- b) Only use METTLER TOLEDO power cable, if these need to be replaced.
- c) Ensure that no liquid comes into contact with the balance, terminal or AC adapter.
- d) Do not open the balance, terminal or AC adapter. These contain no user-serviceable parts.



CAUTION

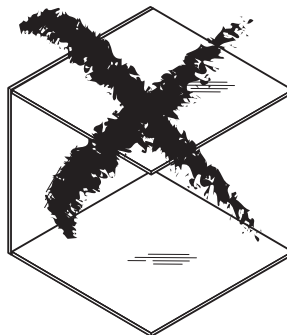
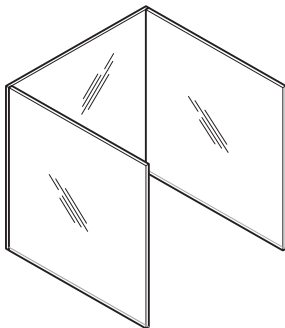
Damage of balance

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

Cleaning

Your balance is made from high quality, resistant materials and can therefore be cleaned with a commercially available, mild cleaning agent.

- 1 To thoroughly clean the U-shaped draft shield glass, carefully remove it from the draft shield.
- 2 Place it on a clean, soft surface, as illustrated in the diagram.
- 3 When reinserting the glass, ensure that it is in the correct position.



Note

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

5.2 Disposal

In conformance with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.

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

Thank you for your contribution to environmental protection.



6 Technical Data

6.1 General data S weighing platform



CAUTION

Use only with a tested AC Adapter with SELV output current.
Ensure correct polarity 

Power supply

| | |
|-----------------------|--|
| AC adapter: | Primary: 100 – 240 V AC, -15%/+10%, 50/60 Hz Secondary: 12 V DC $\pm 3\%$, 2.5 A (with electronic overload protection) |
| Cable for AC adapter: | 3-core, with country-specific plug |
| Balance power supply: | 12 V DC $\pm 3\%$, 2.25 A, maximum ripple: 80 mVpp |

Protection and standards

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

Environmental conditions

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

Materials

| | |
|-------------------------|--|
| Housing: | Die-cast aluminum, lacquered, plastic and chrome steel |
| Terminal: | Die-cast zinc, chromed and plastics |
| Weighing pan: | Chrome-nickel steel X2CrNiMo-17-12-2 |
| SmartPan with drip tray | Die-cast zinc, chromed (10 mg models) |
| Draft shield: | Plastic, chrome steel and glass |
| Draft shield element: | Die-cast zinc, chromed |

6.2 General data L weighing platform

Power supply

| | |
|---------------|--|
| Power supply: | 100 – 240 V AC, -15%/+10%, 50/60 Hz, 0.4 A |
| Power cable: | 3-core, with country-specific plug |

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 only in closed interior rooms |

Environmental conditions

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

Materials

| | |
|-------------------------|---|
| Housing: | Sheet aluminum, die cast, lacquered, plastic and chrome steel |
| Terminal: | Die-cast zinc, chromed and plastics |
| Weighing pan: | Chrome-nickel steel X5CrNi18-10 |
| SmartPan with drip tray | Die-cast zinc, chromed (10 mg models) |

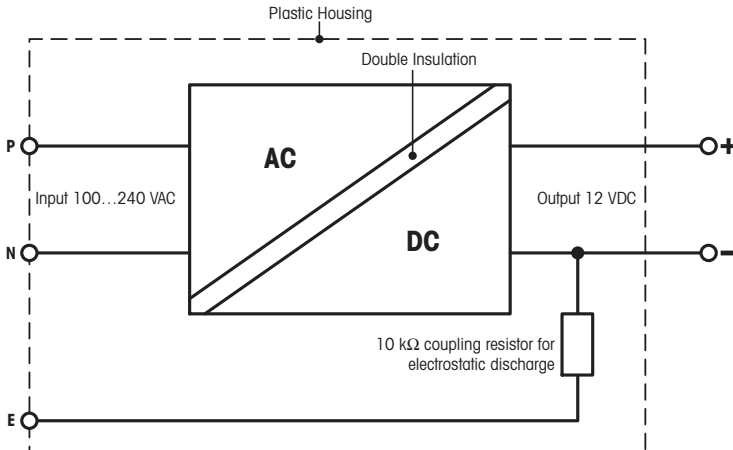
6.3 Explanatory notes for the METTLER TOLEDO AC adapter

The certified external power supply which conforms to the requirements for Class II double insulated equipment is not provided with a protective earth connection but with a functional earth connection for EMC purposes. This earth connection IS NOT a safety feature. Further information about conformance of our products can be found in the brochure "Declaration of Conformity" which is coming with each product.

In case of testing with regard to the European Directive 2001/95/EC the power supply and the balance have to be handled as Class II double insulated equipment.

Consequently an earth bonding test is not required. Similarly it is not necessary to carry out an earth bonding test between the supply earth conductor and any exposed metalwork on the balance.

Because the balance are sensitive to static charges a leakage resistor, typically 10 kΩ, is connected between the earth connector and the power supply output terminals. The arrangement is shown in the equivalent circuit diagram. This resistor is not part of the electrical safety arrangement and does not require testing at regular intervals.



2: Equivalent circuit diagram

6.4 Model-specific data

6.4.1 Balances with readability of 1 mg, S platform with draft shield and SmartPan

More detailed information is in the Operating Instructions on the CD-ROM.

| | XS303S | XS603S | XS1203S |
|---------------------|--------|--------|---------|
| Limit values | | | |
| Maximum capacity | 310 g | 610 g | 1210 g |

| | XS303S | XS603S | XS1203S |
|--|-------------------------|-------------------------|-------------------------|
| Readability | 1 mg | 1 mg | 1 mg |
| Tare range (from...to) | 0 ... 310 g | 0 ... 610 g | 0 ... 1210 g |
| Maximum capacity in fine range | – | – | – |
| Readability in fine range | – | – | – |
| Repeatability (at nominal load) * | sd 0.9 mg (100 g) | 0.9 mg (200 g) | 0.8 mg (500 g) |
| Repeatability in fine range (at nominal load) * | sd – | – | – |
| Linearity deviation | 2 mg (50 g) | 2 mg (200 g) | 2 mg (200 g) |
| Eccentricity deviation (test load) ¹⁾ | 3 mg (100 g) | 3 mg (200 g) | 3 mg (500 g) |
| Sensitivity offset (test weight) | 6 mg (300 g) | 4.5 mg (600 g) | 6 mg (1200 g) |
| Sensitivity temperature drift ²⁾ | 0.0005%/°C | 0.0002%/°C | 0.0002%/°C |
| Sensitivity stability ³⁾ | 0.0025%/a | 0.001%/a | 0.001%/a |
| Dimensions | | | |
| Balance dimensions (W × D × H) | 194 × 366 × 276 mm | 194 × 366 × 276 mm | 194 × 366 × 276 mm |
| Weighing pan dimensions | 127 × 127 mm (W × D) | 127 × 127 mm (W × D) | 127 × 127 mm (W × D) |
| Weights for routine testing | | | |
| OIML CarePac | #11123001 | #11123007 | #11123008 |
| Weights | 200 g F2, 10 g F1 | 500 g F2, 20 g F1 | 1000 g F2, 50 g F1 |
| ASTM CarePac | #11123101 | #11123107 | #11123108 |
| Weights | 200 g 1, 10 g 1 | 500 g 1, 20 g 1 | 1000 g 1, 50 g 1 |

sd = Standard deviation

¹⁾ According to OIML R76

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

³⁾ After putting into operation for the first time, with the self-adjustment function activated (ProFACT or FACT)

6.4.2 Balances with readability of 1 mg, S platform with SmartPan

More detailed information is in the Operating Instructions on the CD-ROM.

| | XS303SN | XS603SN |
|--|----------------------|----------------------|
| Limit values | | |
| Maximum capacity | 310 g | 610 g |
| Readability | 1 mg | 1 mg |
| Tare range (from...to) | 0 ... 310 g | 0 ... 610 g |
| Maximum capacity in fine range | – | – |
| Readability in fine range | – | – |
| Repeatability (at nominal load) | sd 0.9 mg (100 g) | 0.9 mg (200 g) |
| Repeatability in fine range (at nominal load) | sd – | – |
| Linearity deviation | 2 mg (50 g) | 2 mg (200 g) |
| Eccentricity deviation (test load) ¹⁾ | 3 mg (100 g) | 3 mg (200 g) |
| Sensitivity offset (test weight) | 6 mg (300 g) | 4.5 mg (600 g) |
| Sensitivity temperature drift ²⁾ | 0.0005%/°C | 0.0002%/°C |
| Sensitivity stability ³⁾ | 0.0025%/a | 0.001%/a |
| Dimensions | | |
| Balance dimensions (W × D × H) | 195 × 366 × 97 mm | 195 × 366 × 97 mm |
| Weighing pan dimensions | 127 × 127 mm (W × D) | 127 × 127 mm (W × D) |
| Weights for routine testing | | |
| OIML CarePac | #11123001 | #11123007 |
| Weights | 200 g F2, 10 g F1 | 500 g F2, 20 g F1 |
| ASTM CarePac | #11123101 | #11123107 |
| Weights | 200 g 1, 10 g 1 | 500 g 1, 20 g 1 |

sd = Standard deviation

¹⁾ According to OIML R76

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

- ³⁾ After putting into operation for the first time, with the self-adjustment function activated (ProFACT or FACT)

6.4.3 Balances with readability of 10 mg, S platform with SmartPan weighing pan

More detailed information is in the Operating Instructions on the CD-ROM.

| | | XS1202S | XS2002S | XS4002S |
|--|---------|-------------------------|-------------------------|-------------------------|
| Limit values | | | | |
| Maximum capacity | | 1210 g | 2.1 kg | 4.1 kg |
| Readability | | 10 mg | 10 mg | 10 mg |
| Tare range (from...to) | | 0 ... 1210 g | 0 ... 2.1 kg | 0 ... 4100 g |
| Maximum capacity in fine range | | – | – | – |
| Readability in fine range | | – | – | – |
| Repeatability (at nominal load) | sd | 8 mg (500 g) | 8 mg (1000 g) | 8 mg (2 kg) |
| Repeatability in fine range (at nominal load) | sd | – | – | – |
| Linearity deviation | | 20 mg (200 g) | 20 mg (500 g) | 20 mg (1000 g) |
| Eccentricity deviation (test load) ¹⁾ | | 20 mg (500 g) | 30 mg (1000 g) | 30 mg (2 kg) |
| Sensitivity offset (test weight) | | 60 mg (1200 g) | 60 mg (2 kg) | 50 mg (4 kg) |
| Sensitivity temperature drift ²⁾ | | 0.0003%/°C | 0.0003%/°C | 0.0003%/°C |
| Sensitivity stability ³⁾ | | 0.0025%/a | 0.0025%/a | 0.0015%/a |
| Dimensions | | | | |
| Balance dimensions (W × D × H) | | 195 × 367 × 97 mm | 195 × 367 × 97 mm | 195 × 367 × 97 mm |
| Weighing pan dimensions | | 172 × 205 mm (W × D) | 172 × 205 mm (W × D) | 172 × 205 mm (W × D) |
| Weights for routine testing | | | | |
| OIML CarePac | | #11123008 | #11123009 | #11123010 |
| | Weights | 1000 g F2, 50 g F2 | 2000 g F2, 100 g F2 | 2000 g F2, 200 g F2 |
| ASTM CarePac | | #11123108 | #11123109 | #11123110 |
| | Weights | 1000 g 1, 50 g 1 | 2000 g 1, 100 g 1 | 2000 g 4, 200 g 4 |

sd = Standard deviation

¹⁾ According to OIML R76

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

³⁾ After putting into operation for the first time, with the self-adjustment function activated (ProFACT or FACT)

More detailed information is in the Operating Instructions on the CD-ROM.

| | | XS6002SDR | XS6002S | XS10002S |
|--|----|-------------------------|-------------------------|-------------------------|
| Limit values | | | | |
| Maximum capacity | | 6.1 kg | 6.1 kg | 10.1 kg |
| Readability | | 100 mg | 10 mg | 10 mg |
| Tare range (from...to) | | 0 ... 6.1 kg | 0 ... 6.1 kg | 0 ... 10.1 kg |
| Maximum capacity in fine range | | 1200 g | – | – |
| Readability in fine range | | 10 mg | – | – |
| Repeatability (at nominal load) | sd | 60 mg (2 kg) | 8 mg (2 kg) | 8 mg (5 kg) |
| Repeatability in fine range (at nominal load) | sd | 8 mg (1000 g) | – | – |
| Linearity deviation | | 60 mg (2 kg) | 20 mg (2 kg) | 20 mg (2 kg) |
| Eccentricity deviation (test load) ¹⁾ | | 100 mg (2 kg) | 30 mg (2 kg) | 40 mg (5 kg) |
| Sensitivity offset (test weight) | | 150 mg (6 kg) | 60 mg (6 kg) | 50 mg (10 kg) |
| Sensitivity temperature drift ²⁾ | | 0.0003%/°C | 0.0003%/°C | 0.00025%/°C |
| Sensitivity stability ³⁾ | | 0.0015%/a | 0.0015%/a | 0.0015%/a |
| Dimensions | | | | |
| Balance dimensions (W × D × H) | | 195 × 367 × 97 mm | 195 × 367 × 97 mm | 195 × 367 × 97 mm |
| Weighing pan dimensions | | 172 × 205 mm (W × D) | 172 × 205 mm (W × D) | 172 × 205 mm (W × D) |
| Weights for routine testing | | | | |

| | | | | |
|--------------|---------|---------------------|---------------------|----------------------|
| OIML CarePac | | #11123011 | #11123011 | – |
| | Weights | 5000 g F2, 200 g F2 | 5000 g F2, 200 g F2 | 10000 g F2, 500 g F2 |
| ASTM CarePac | | #11123111 | #11123111 | – |
| | Weights | 5000 g 4, 200 g 4 | 5000 g 4, 200 g 4 | 10000 g 4, 500 g 4 |

sd = Standard deviation

¹⁾ According to OIML R76

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

³⁾ After putting into operation for the first time, with the self-adjustment function activated (ProFACT or FACT)

6.4.4 Balances with readability of 0.1 g, S platform

More detailed information is in the Operating Instructions on the CD-ROM.

| | | XS4001S | XS6001S | XS8001S |
|--|---------|-------------------------|-------------------------|-------------------------|
| Limit values | | | | |
| Maximum capacity | | 4.1 kg | 6.1 kg | 8.1 kg |
| Readability | | 100 mg | 100 mg | 100 mg |
| Tare range (from...to) | | 0 ... 4.1 kg | 0 ... 6.1 kg | 0 ... 8.1 kg |
| Maximum capacity in fine range | | – | – | – |
| Readability in fine range | | – | – | – |
| Repeatability (at nominal load) | sd | 80 mg (2 kg) | 80 mg (2 kg) | 80 mg (5 kg) |
| Repeatability in fine range (at nominal load) | sd | – | – | – |
| Linearity deviation | | 60 mg (1 kg) | 60 mg (2 kg) | 100 mg (2 kg) |
| Eccentricity deviation (test load) ¹⁾ | | 200 mg (2 kg) | 200 mg (2 kg) | 200 mg (5 kg) |
| Sensitivity offset (test weight) | | 240 mg (4 kg) | 240 mg (6 kg) | 600 mg (8 kg) |
| Sensitivity temperature drift ²⁾ | | 0.0015%/°C | 0.0015%/°C | 0.0015%/°C |
| Sensitivity stability ³⁾ | | 0.005%/a | 0.005%/a | 0.005%/a |
| Dimensions | | | | |
| Balance dimensions (W × D × H) | | 195 × 367 × 96 mm | 195 × 367 × 96 mm | 195 × 367 × 96 mm |
| Weighing pan dimensions | | 190 × 223 mm (W × D) | 190 × 223 mm (W × D) | 190 × 223 mm (W × D) |
| Weights for routine testing | | | | |
| OIML CarePac | | #11123010 | #11123011 | #11123011 |
| | Weights | 2000 g F2, 200 g F2 | 5000 g F2, 200 g F2 | 5000 g F2, 200 g F2 |
| ASTM CarePac | | #11123110 | #11123111 | #11123111 |
| | Weights | 2000 g 4, 200 g 4 | 5000 g 4, 200 g 4 | 5000 g 4, 200 g 4 |

sd = Standard deviation

¹⁾ According to OIML R76

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

³⁾ After putting into operation for the first time, with the self-adjustment function activated (ProFACT or FACT)

More detailed information is in the Operating Instructions on the CD-ROM.

| | | XS10001S |
|--|----|----------------|
| Limit values | | |
| Maximum capacity | | 10.1 kg |
| Readability | | 100 mg |
| Tare range (from...to) | | 0 ... 10.1 kg |
| Maximum capacity in fine range | | – |
| Readability in fine range | | – |
| Repeatability (at nominal load) | sd | 80 mg (5 kg) |
| Repeatability in fine range (at nominal load) | sd | – |
| Linearity deviation | | 100 mg (2 kg) |
| Eccentricity deviation (test load) ¹⁾ | | 200 mg (5 kg) |
| Sensitivity offset (test weight) | | 500 mg (10 kg) |
| Sensitivity temperature drift ²⁾ | | 0.0015%/°C |
| Sensitivity stability ³⁾ | | 0.005%/a |

| Dimensions | |
|--------------------------------|----------------------|
| Balance dimensions (W × D × H) | 195 × 367 × 96 mm |
| Weighing pan dimensions | 190 × 223 mm (W × D) |
| Weights for routine testing | |
| OIML weights | 10000 g F2, 500 g F2 |
| ASTM weights | 10000 g 4, 500 g 4 |

sd = Standard deviation

¹⁾ According to OIML R76

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

³⁾ After putting into operation for the first time, with the self-adjustment function activated (ProFACT or FACT)

6.4.5 Balances with readability of 0.1 g, L platform

More detailed information is in the Operating Instructions on the CD-ROM.

| | XS10001L | XS16001L | XS32001LDR |
|--|-------------------------|-------------------------|-------------------------|
| Limit values | | | |
| Maximum capacity | 10.1 kg | 16.1 kg | 32.1 kg |
| Readability | 100 mg | 100 mg | 1 g |
| Tare range (from...to) | 0 ... 10.1 kg | 0 ... 16.1 kg | 0 ... 32.1 kg |
| Maximum capacity in fine range | – | – | 6.4 kg |
| Readability in fine range | – | – | 100 mg |
| Repeatability (at nominal load) | sd 80 mg (5 kg) | 80 mg (5 kg) | 600 mg (10 kg) |
| Repeatability in fine range (at nominal load) | sd – | – | 100 mg (6 kg) |
| Linearity deviation | 200 mg (2 kg) | 200 mg (4 kg) | 300 mg (5 kg) |
| Eccentricity deviation (test load) ¹⁾ | 300 mg (5 kg) | 300 mg (5 kg) | 1 g (10 kg) |
| Sensitivity offset (test weight) | 500 mg (10 kg) | 800 mg (16 kg) | 960 mg (32 kg) |
| Sensitivity temperature drift ²⁾ | 0.0015%/°C | 0.0015%/°C | 0.001%/°C |
| Sensitivity stability ³⁾ | 0.005%/a | 0.005%/a | 0.003%/a |
| Dimensions | | | |
| Balance dimensions (W × D × H) | 360 × 404 × 131 mm | 360 × 404 × 131 mm | 360 × 404 × 131 mm |
| Weighing pan dimensions | 280 × 360 mm (W × D) | 280 × 360 mm (W × D) | 280 × 360 mm (W × D) |
| Weights for routine testing | | | |
| OIML weights | 10000 g F2, 500 g F2 | 10000 g F2, 500 g F2 | 20000 g F2, 1000 g F2 |
| ASTM weights | 10000 g 4, 500 g 4 | 10000 g 4, 500 g 4 | 20000 g 4, 1000 g 4 |

sd = Standard deviation

¹⁾ According to OIML R76

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

³⁾ After putting into operation for the first time, with the self-adjustment function activated (ProFACT or FACT)

More detailed information is in the Operating Instructions on the CD-ROM.

| | XS32001L |
|--|------------------|
| Limit values | |
| Maximum capacity | 32.1 kg |
| Readability | 100 mg |
| Tare range (from...to) | 0 ... 32.1 kg |
| Maximum capacity in fine range | – |
| Readability in fine range | – |
| Repeatability (at nominal load) | sd 80 mg (10 kg) |
| Repeatability in fine range (at nominal load) | sd – |
| Linearity deviation | 300 mg (5 kg) |
| Eccentricity deviation (test load) ¹⁾ | 300 mg (10 kg) |
| Sensitivity offset (test weight) | 960 mg (32 kg) |
| Sensitivity temperature drift ²⁾ | 0.001%/°C |
| Sensitivity stability ³⁾ | 0.003%/a |

| Dimensions | | |
|------------------------------------|--|-----------------------|
| Balance dimensions (W × D × H) | | 360 × 404 × 131 mm |
| Weighing pan dimensions | | 280 × 360 mm (W × D) |
| Weights for routine testing | | |
| OIML weights | | 20000 g F2, 1000 g F2 |
| ASTM weights | | 20000 g 4, 1000 g 4 |

sd = Standard deviation

¹⁾ According to OIML R76

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

³⁾ After putting into operation for the first time, with the self-adjustment function activated (ProFACT or FACT)

6.4.6 Balances with readability of 1 g, L platform

More detailed information is in the Operating Instructions on the CD-ROM.

| | | XS16000L | XS32000L |
|--|----|----------------------|-----------------------|
| Limit values | | | |
| Maximum capacity | | 16.1 kg | 32.1 kg |
| Readability | | 1 g | 1 g |
| Tare range (from...to) | | 0 ... 16.1 kg | 0 ... 32.1 kg |
| Maximum capacity in fine range | | – | – |
| Readability in fine range | | – | – |
| Repeatability (at nominal load) | sd | 600 mg (5 kg) | 600 mg (10 kg) |
| Repeatability in fine range (at nominal load) | sd | – | – |
| Linearity deviation | | 600 mg | 600 mg |
| Eccentricity deviation (test load) ¹⁾ | | 1 g (5 kg) | 1 g (10 kg) |
| Sensitivity offset (test weight) | | 1.28 g (16 kg) | 1.92 g (32 kg) |
| Sensitivity temperature drift ²⁾ | | 0.0015%/°C | 0.0015%/°C |
| Sensitivity stability ³⁾ | | 0.005%/a | 0.005%/a |
| Dimensions | | | |
| Balance dimensions (W × D × H) | | 360 × 404 × 131 mm | 360 × 404 × 131 mm |
| Weighing pan dimensions | | 280 × 360 mm (W × D) | 280 × 360 mm (W × D) |
| Weights for routine testing | | | |
| OIML weights | | 10000 g F2, 500 g F2 | 20000 g F2, 1000 g F2 |
| ASTM weights | | 10000 g 4, 500 g 4 | 20000 g 4, 1000 g 4 |

sd = Standard deviation

¹⁾ According to OIML R76

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

³⁾ After putting into operation for the first time, with the self-adjustment function activated (ProFACT or FACT)

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Further information

Mettler-Toledo AG, Laboratory Weighing

CH-8606 Greifensee, Switzerland

Tel. +41 (0)44 944 22 11

Fax +41 (0)44 944 30 60

www.mt.com

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