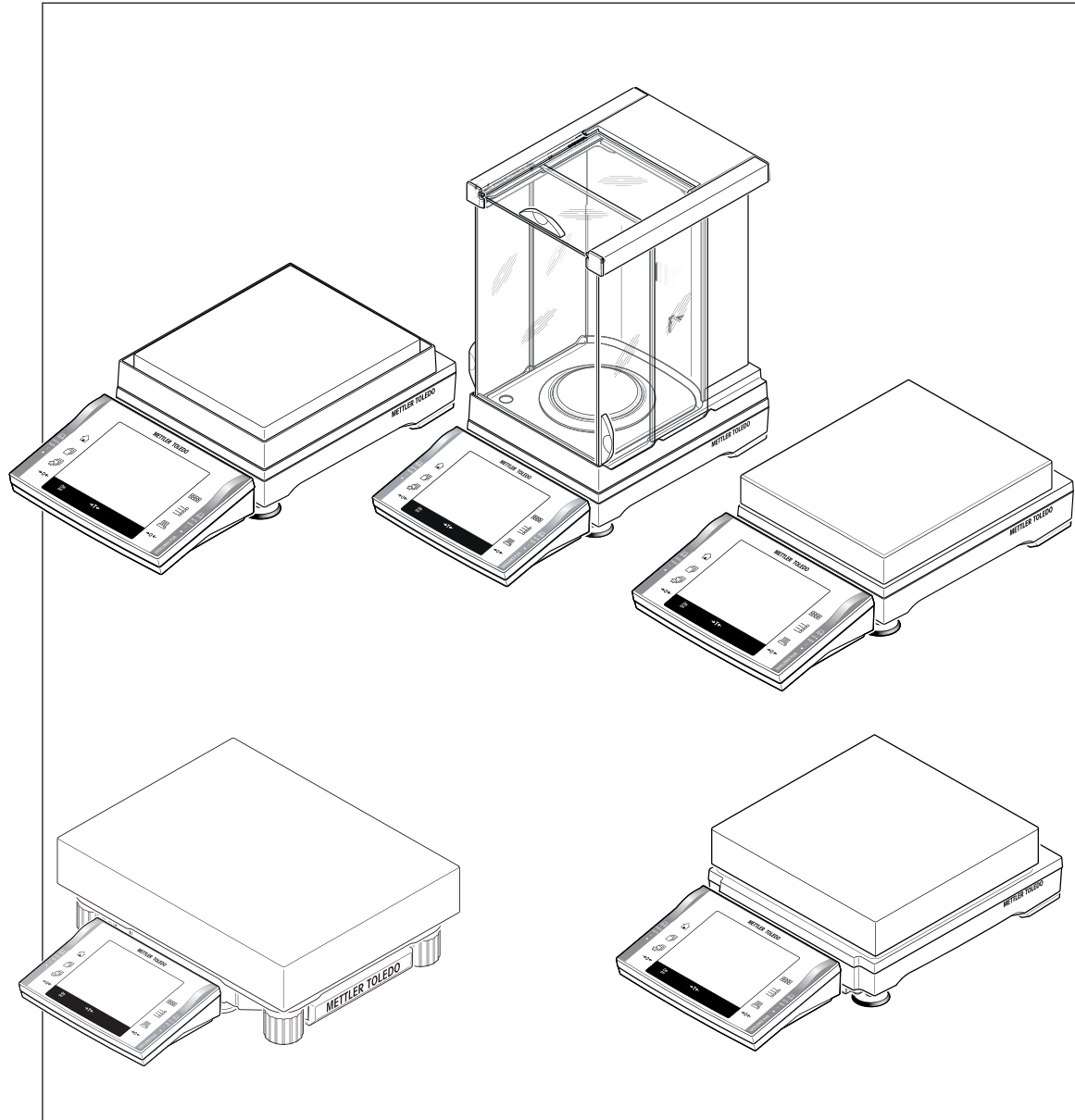


Excellence Plus Precision Balances

XP Models - Part 1



METTLER TOLEDO

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1 Introduction

Thank you for choosing a METTLER TOLEDO balance.

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

In this chapter you will be given basic information about your balance. Please read right through this chapter carefully even if you already have experience with METTLER TOLEDO balances. Please pay special attention to the safety warnings!

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

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

The following features are common to all models of the XP lines:

- Fully automatic adjustment "ProFACT" using internal weights.
- Built-in level sensor, illuminated level indicator and Leveling Assistant for fast and easy leveling.
- Built-in applications for normal weighing, statistics, formulation, piece counting, percent weighing, density, dynamic weighing, differential weighing and LabX Client.
- Integral RS232C interface.
- Slot for second interface (optional).
- Touch-sensitive graphics terminal ("Touch Screen") with color display.
- Two programmable sensors for hands-off operation ("SmartSens") to speed up frequently recurring tasks.

A brief word about standards, guidelines, and methods of quality assurance: The balances comply with usual standards and guidelines. They support standard procedures, specifications, working methods, and reports according to **GLP (Good Laboratory Practice)**. In this connection, records of working procedures and adjustments become very important; for this purpose we recommend you to use a printer from the METTLER TOLEDO range, since these are optimally adapted to your balance. The balances conform to the applicable standards and guidelines and possess a EC declaration of conformity. METTLER TOLEDO is certified as manufacturer according to ISO 9001 and ISO 14001.

The Operating Instructions for the XP balances consist of 3 separate documents, whose contents are listed below.

Part 1, This Document

Contents

- Introduction
- Safety Information
- Setting up the Balance
- Leveling the Balance
- Cleaning and Service
- Technical Data
- Interface commands and MT-SICS functions
- Accessories
- Spare Parts

Part 2, Separate Document

Contents: Terminal, System and Applications

- Basic Principles for Using the Terminal and the Firmware
- System Settings
- User-specific Settings
- Applications
- Firmware (Software) Updates
- Error and Status Messages
- Conversion Table for Weight Units
- Recommended Printer Settings

Part 3, Separate Document

Contents: Adjustments and Tests

- Adjustments
- Tests

Finding More Information

Internet <http://www.mt.com/excellence>

1.1 Conventions and Symbols Used in These Operating Instructions

The following conventions apply to the operating instructions: Part 1, Part 2 and Part 3.

Key designations are indicated by a picture or text in double angular parentheses (e.g. «» or «**On/Off**»).



This symbol indicates press key briefly (less than 1.5 s).



This symbol indicates press and hold key down (longer than 1.5 s).

These symbols indicate an instruction:

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

2 Safety Information

2.1 Definition of Signal Warnings and Symbols

Safety notes are marked with signal words and warning symbols. These show safety issues and warnings. Ignoring the safety notes may lead to personal injury, damage to the balance, malfunctions and false 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 damaged to the device or the property or in losing 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 Specific Safety Notes

Always operate and use your balance only in accordance with the Operating Instructions Part 1, Part 2 and Part 3.

The instructions for setting up your new balance must be strictly observed.

If the instrument is not used according to the manufacturer's Operating Instructions (Part 1, Part 2 and Part 3), protection of the instrument may be impaired.

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).



CAUTION

Damage of Device

- For use only in dry interior rooms.
 - Do not use sharply pointed objects to operate the keyboard! Although your balance is very ruggedly constructed, it is nevertheless a precision instrument. Treat it with corresponding care.
 - Do not open the balance: It does not contain any parts which can be maintained, repaired, or replaced by the user. If you ever have problems with your balance, contact your METTLER TOLEDO dealer.
 - Use only balance accessories and peripheral devices from METTLER TOLEDO; they are optimally adapted to your balance.
-



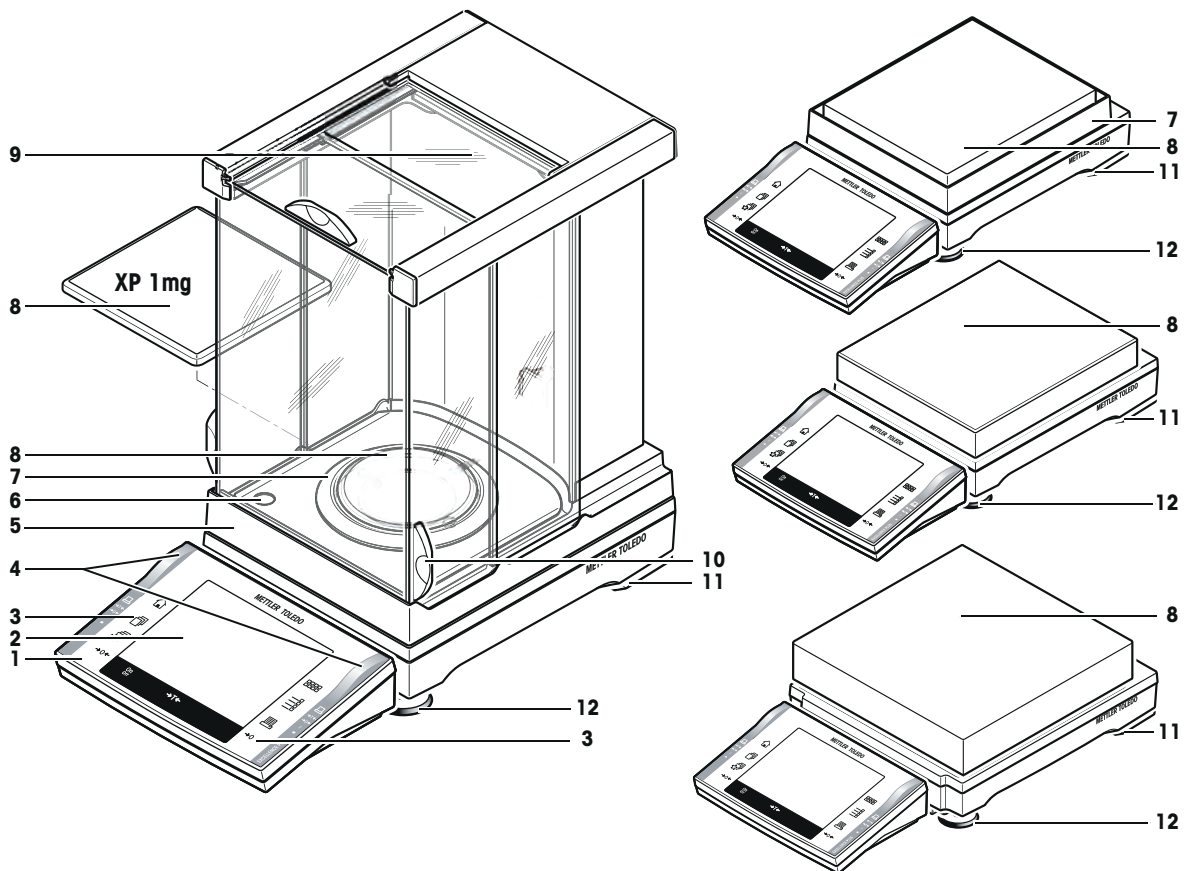
CAUTION

Damage of Device

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.

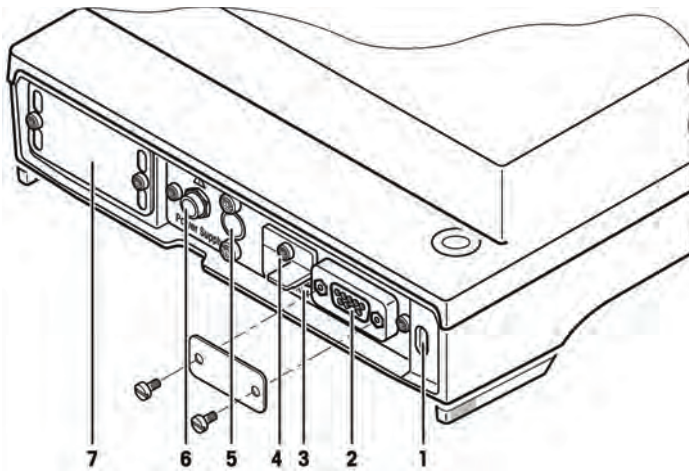
3 Overview XP Precision Balances

3.1 Overview "S" and "M" Weighing Platform



Front View S and M Platform

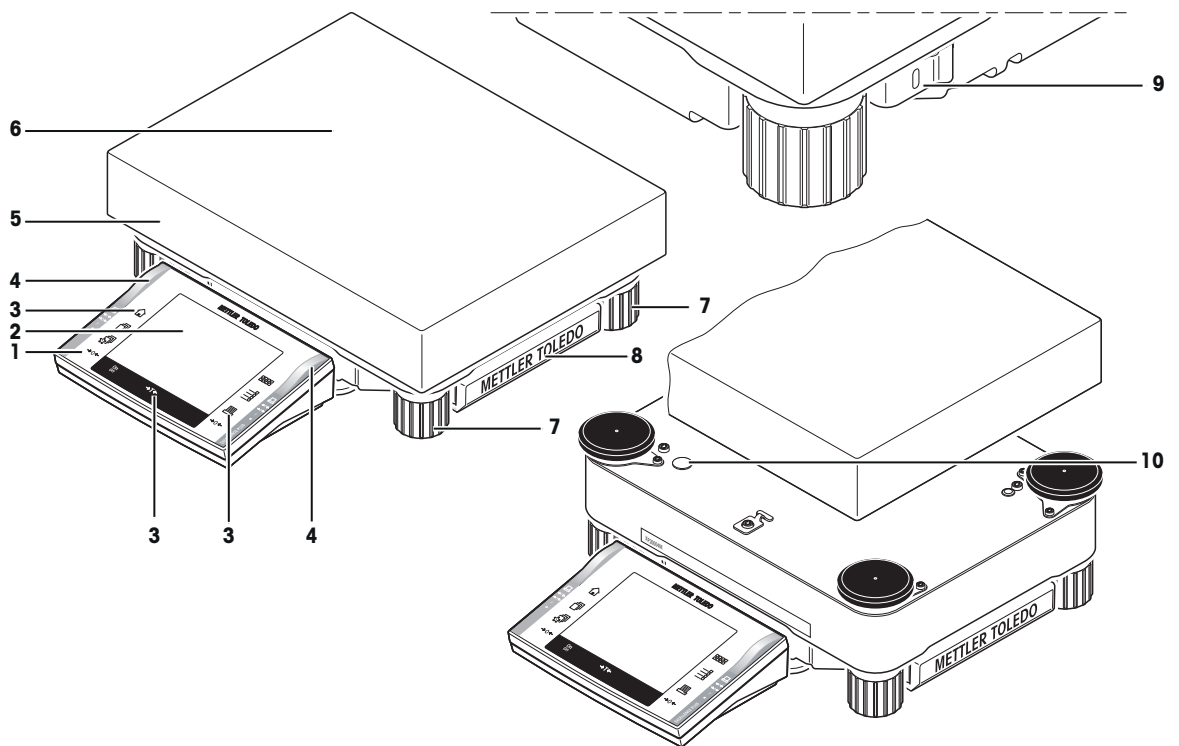
1	Terminal (details see Operating Instruction – Part 2)	2	Display (Touch-sensitive "Touch Screen")
3	Operating keys	4	SmartSens sensors
5	Type name	6	Level indicator / level sensor
7	Draft shield element	8	Weighing pan
9	Glass draft shield	10	Handle for operation of the draft-shield door
11	Safety feet (10 mg, 0.1 g + 1 g models)	12	Foot screws



Rear View S and M Platform

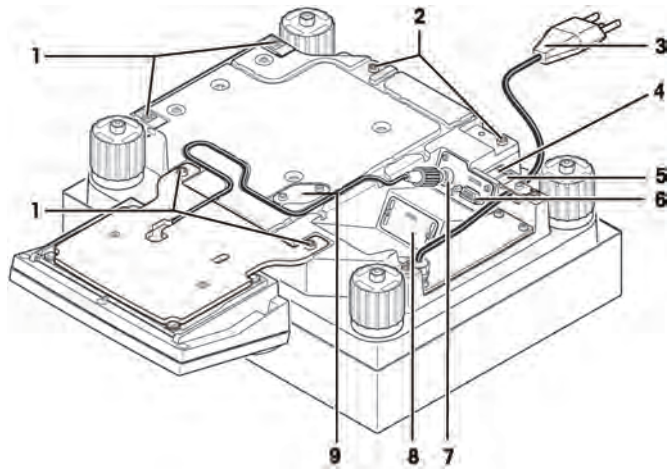
1	Fastening point for anti-theft device	2	RS232C serial interface
3	Aux 1 (connection for "ErgoSens", hand- or foot-switch)	4	Aux 2 (connection for "ErgoSens", hand- or foot-switch)
5	Fastening for auxiliary display stand or terminal stand (optional)	6	Socket for AC adapter
7	Slot for second interface (optional)		

3.2 Overview "L" Weighing Platform



Top View L Platform

1	Terminal (details see Operating Instruction – Part 2)	2	Display (Touch-sensitive "Touch Screen")
3	Operating keys	4	SmartSens sensors
5	Type name	6	Weighing pan
7	Foot screws	8	Cover
9	Fastening point for anti-theft device	10	Level indicator / level sensor



Bottom View L Platform

1	Points of attachment for terminal or cover	2	Fastening for terminal stand (optional)
3	Power cable	4	Aux 1 (connection for "ErgoSens", hand- or foot-switch)
5	Aux 2 (connection for "ErgoSens", hand- or foot-switch)	6	RS232C serial interface
7	Connector for terminal cable	8	Slot for second interface (optional)
9	Cover plate for below-the-balance weighing (hook optional)		

4 Setting up the Balance

This chapter describes how to unpack your new balance, set it up and prepare it for operation. On completion of the steps described in this chapter, your balance is ready for operation.



CAUTION

Electrical shock

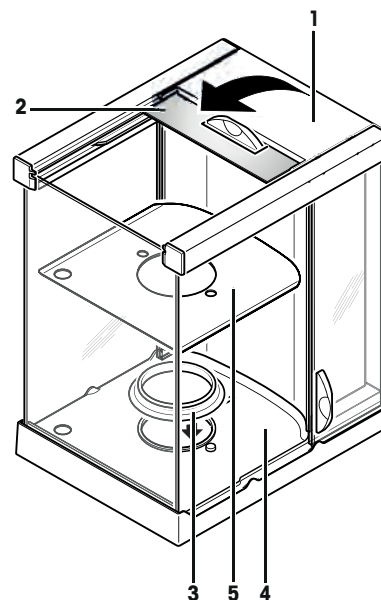
The balance must be disconnected from the power supply when carrying out all setup and mounting work.

4.1 Unpacking and Checking the Delivered Items

Open the packaging and carefully remove all components.

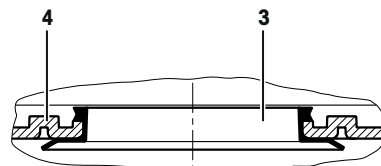
4.1.1 Unpacking the Draft Shield "S" Weighing Platform (Model-dependent)

- 1 Place the draft shield on a clean surface.
- 2 Turn so the cover (1) is vertically on top.
- 3 Lift the carton (2) off over the handle and the pull the carton off toward the back.
- 4 Hold the glass panels firmly so they do not get pulled off and fall to the floor.
- 5 Close the cover (1) again.
- 6 Push all the glass panels as far as they will go to the back.



Balance with 0.1 mg readability

- 1 Place the ring seal (3) into the draft shield base (4) from above.
- 2 Push the complete ring seal (3) through the opening in the draft shield base.
- 3 Pull the top edge upward through the opening until the edge lies flat and tight all the way round.
- 4 Check by running a finger all the way round that the seal ring (3) is fitted tightly into the opening in the draft shield base (4).
- 5 Insert the bottom plate (5).



Balance with 1 mg readability

- Insert the bottom plate (5).

4.2 Scope of Delivery

The standard scope of delivery contains the following items:

Components		S platform			
		0.1 mg	1 mg	10 mg	0.1 g
Weighing platform		✓	✓	✓	✓
	RS232C interface	✓	✓	✓	✓
	Slot for second interface (optional)	✓	✓	✓	✓

Components		S platform			
	Feedthroughs for below-the-balance weighing	✓	✓	✓	✓
	Feedthroughs for antitheft device	✓	✓	✓	✓
AC adapter		✓	✓	✓	✓
Country-specific power cable		✓	✓	✓	✓
Terminal support		✓	✓	✓	✓
Terminal with protective cover		✓	✓	✓	✓
Draft shield with bottom plate		✓	✓	–	–
Draft shield element		✓	–	✓	–
Ring seal		✓	–	–	–
Protective cover for weighing platform		–	–	✓	✓
Weighing pan support		–	✓	✓	✓
Weighing pan	ø 90 mm	✓	–	–	–
	127 x 127 mm	–	✓	–	–
	170 x 205 mm	–	–	✓	–
	190 x 223 mm	–	–	–	✓
	237 x 237 mm	–	–	–	–
	280 x 360 mm	–	–	–	–
Operating Instructions Part 1 (this document), Part 2 and Part 3		✓	✓	✓	✓
Production certificate		✓	✓	✓	✓
CE declaration of conformity		✓	✓	✓	✓

Components		M platform *			L platform	
		10 mg	0.1 g	1 g	0.1 g	1 g
Weighing platform		✓	✓	✓	✓	✓
	RS232C interface	✓	✓	✓	✓	✓
	Slot for second interface (optional)	✓	✓	✓	✓	✓
	Feedthroughs for below-the-balance weighing	✓	✓	✓	–	–
	Ready for below-the-balance weighing (hook optional)	–	–	–	✓	✓
	Feedthroughs for antitheft device	✓	✓	✓	✓	✓
AC adapter		✓	✓	✓	–	–
Country-specific power cable		✓	✓	✓	✓	✓
Terminal support		✓	✓	✓	✓	✓
Terminal with protective cover		✓	✓	✓	✓	✓
Draft shield with bottom plate		–	–	–	–	–
Draft shield element		–	–	–	–	–
Ring seal		–	–	–	–	–
Protective cover for weighing platform		✓	✓	✓	–	–
Pan support		✓	✓	✓	–	–

Components		M platform *			L platform	
Weighing pan	∅ 90 mm	–	–	–	–	–
	127 x 127 mm	–	–	–	–	–
	170 x 205 mm	–	–	–	–	–
	190 x 223 mm	–	–	–	–	–
	237 x 237 mm	✓	✓	✓	–	–
	280 x 360 mm	–	–	–	✓	✓
Operating Instructions Part 1 (this document), Part 2 and Part 3		✓	✓	✓	✓	✓
Production certificate		✓	✓	✓	✓	✓
CE declaration of conformity		✓	✓	✓	✓	✓

* The precision balances with M platform are no longer available.

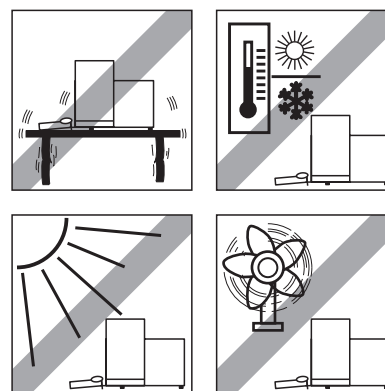
4.3 Selecting a Location

Choose a position which is stable, free from vibration, and as nearly horizontal as possible. The supporting surface must be able to bear the weight of the fully loaded balance safely.

Avoid the following:

- Direct sunlight
- Draft (e.g. from fans or air conditioning)
- Excessive fluctuations in temperature.

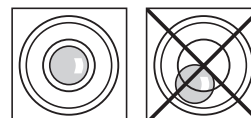
Further information can be found in Weighing the Right Way.



Observe ambient conditions. **See** Technical Data (page 33).

Note

If the balance is not horizontal from the beginning, it will have to be leveled during initial operation. **See** Leveling the Balance (page 27).

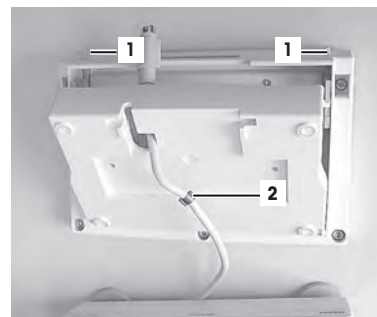


4.4 Assembling the Balance

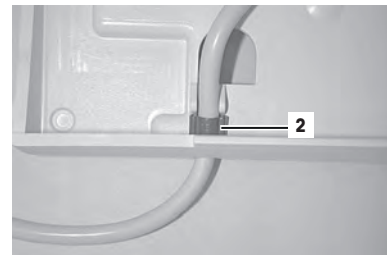
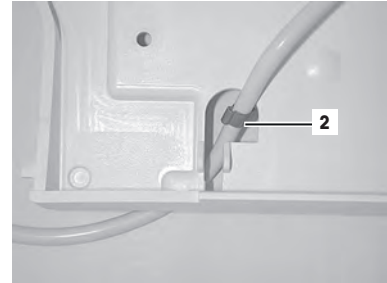
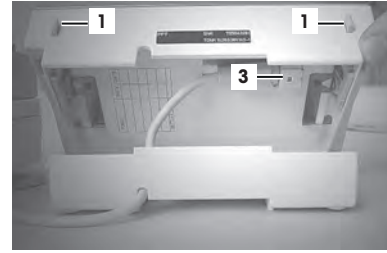
The terminal is identical for all XP precision balances. The size of the weighing pan depends on the readability and maximum capacity of the balance.

4.4.1 Installing the Balance Cable in the Terminal "S" and "M" Weighing Platform

- ▶ Ensure that a soft, clean surface is used so as not to damage the terminal surface.
- 1 Place the terminal on the operating surface.
 - 2 Open the housing by pressing the 2 buttons (1) for adjusting the terminal and swiveling the housing base upwards.
 - 3 Pull the cable with the retaining ring (2) through the opening on the housing base.
 - 4 Return the terminal to its normal position.

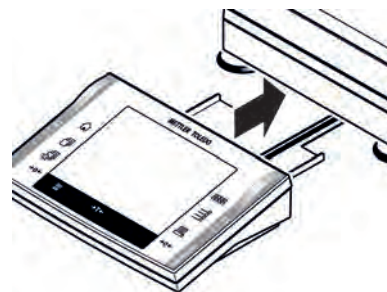
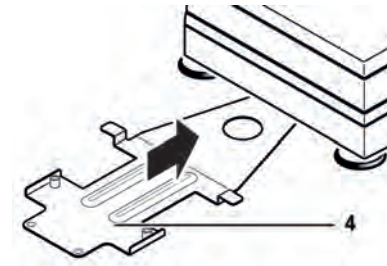


- 5 Open it so that the cable can be accessed.
- 6 Insert the cable (3) into the top housing.
- 7 Close both parts of the housing until the retaining ring (2) is positioned in the cable opening of the housing base.
- 8 Place the retaining ring (2) behind the two guideways and check that it is secure (tension relief).
- 9 Before closing the housing, check that the plug is inserted correctly into the terminal plug-in connection.
- 10 Now close the housing by pressing the two buttons (1) for adjusting the terminal until the housing base engages in the top housing.



4.4.2 Placing the Terminal on the "S" and "M" Weighing Platform

- 1 Slide the terminal support (4) under the front of the weighing platform until you feel it snap into place.
- Note**
For this process, the weighing platform must not be lifted but should ideally be placed at the weighing location.
- 2 Push the terminal support in "horizontally" with it lying on the table.
 - 3 Place the terminal in the center of the terminal support.
 - 4 Slide it towards the weighing platform until the terminal tilts slightly downwards.



Attention

The balance and the terminal are not fastened together by the terminal support! When transporting by hand, always hold the balance and the terminal firmly, **see** Transporting the Balance (page 23).

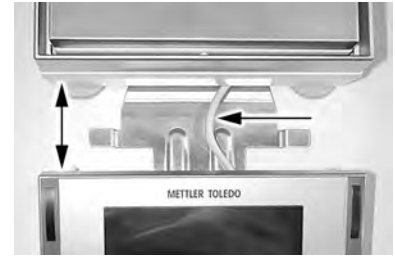
Note

You can also place the terminal free of the terminal support anywhere around the weighing platform where the length of the cable allows.

4.4.3 Fastening the Terminal to the Terminal Support with Screws "S" and "M" Weighing Platform

If you change the weighing site often, we recommend fastening the terminal to the terminal support with screws.

- 1 Pull the terminal, along with the terminal support, about 2 inches (5 cm) away from the weighing platform.
- 2 Pull the terminal cable as far as possible in the direction of the terminal.



- Open the terminal by pressing the 2 buttons.



- Fasten the terminal to the terminal support using the 2 knurled screws (included in delivery).



- Before closing the terminal, check that the terminal plug is firmly in place.



- 1 The retaining ring for the cable must be correctly positioned when the terminal is closed.
- 2 Slide the terminal support with the fastened terminal under the weighing platform (do not lift the balance!) until you feel it snap into place.



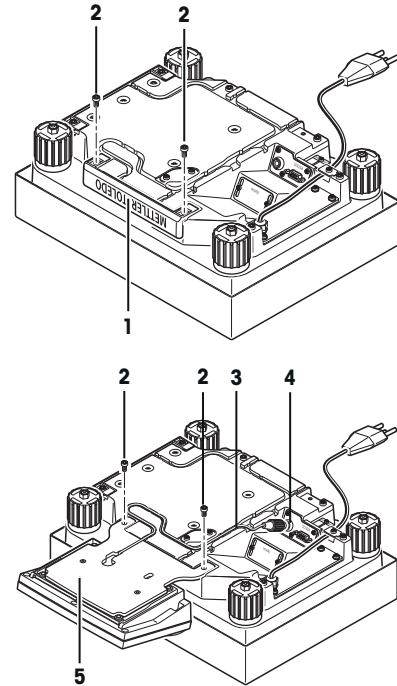
4.4.4 Placing the Terminal on the "L" Weighing Platform

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.

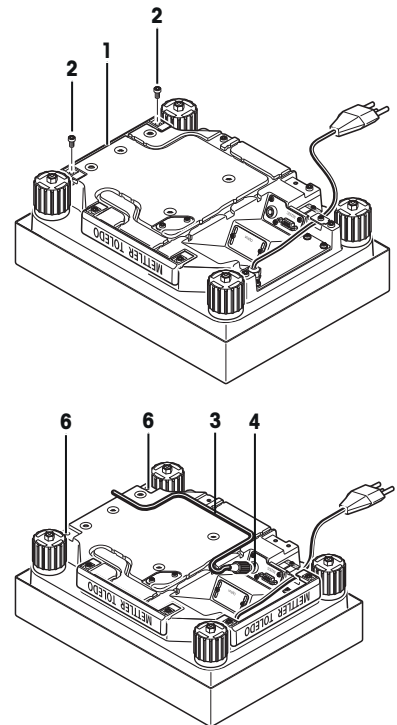
Attaching the terminal to the long side

- 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.



4.4.5 Installing the Draft Shield and Weighing Pan "S" and "M" Weighing Platform

Balances with readability of 0.1 mg, "S" platform with draft shield

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

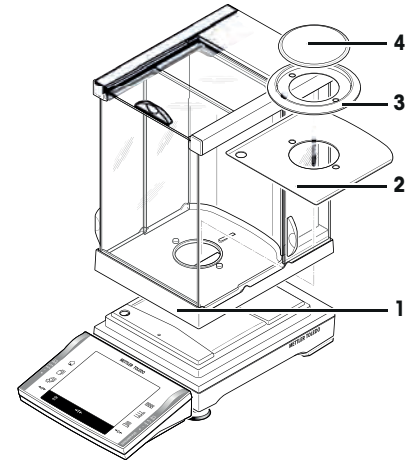
Attention

Push the side glass back as far as it will go. Grasp the draft shield with both hands on the bars at the top.

- Draft shield (1) with ring seal inserted, **see** Unpacking the Draft Shield "S" Weighing Platform (Model-dependent) (page 13).
- Bottom plate (2), if not already inserted, **see** Unpacking the Draft Shield "S" Weighing Platform (Model-dependent) (page 13)!
- Draft shield element (3).
- Weighing pan (4).

Note

Cleaning the draft shield, **see** Cleaning the Draft Shield (0.1 mg and 1 mg Models) (page 31).



Balances with readability of 1 mg, "S" platform with draft shield

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

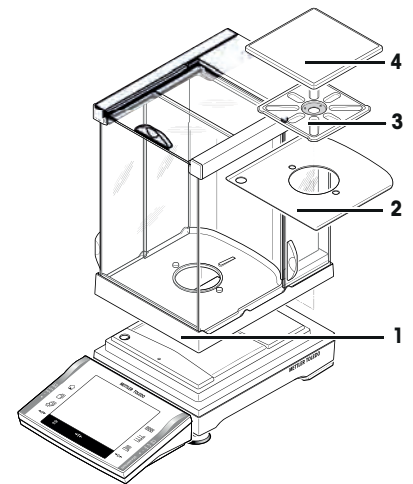
Attention

Push the side glass back as far as it will go. Grasp the draft shield with both hands on the bars at the top.

- Draft shield (1) with ring seal inserted.
- Bottom plate (2), if not already inserted, **see** Unpacking the Draft Shield "S" Weighing Platform (Model-dependent) (page 13)!
- Pan support (3).
- Weighing pan (4).

Note

Cleaning the draft shield, **see** Cleaning the Draft Shield (0.1 mg and 1 mg Models) (page 31).



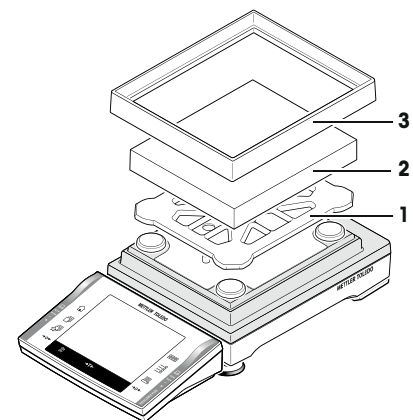
Balances with readability of 10 mg, "S" platform with draft shield element

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

- Pan support (1).
- Weighing pan (2).
- Draft shield element (3).

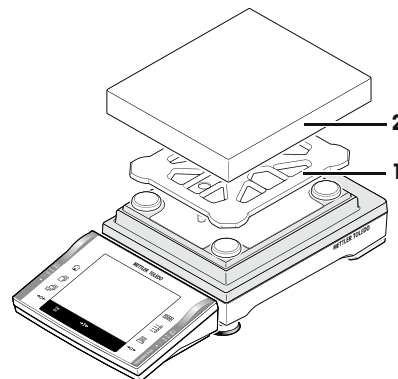
Note

It is also possible to work without the draft shield element (3). However, depending on the ambient conditions, the display of the results may be slightly more unstable.



Balances with readability of 10 mg ("M" platform), 0.1 g ("S" and "M" platform) and 1 g ("M" platform)

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



4.5 Power Supply



WARNING

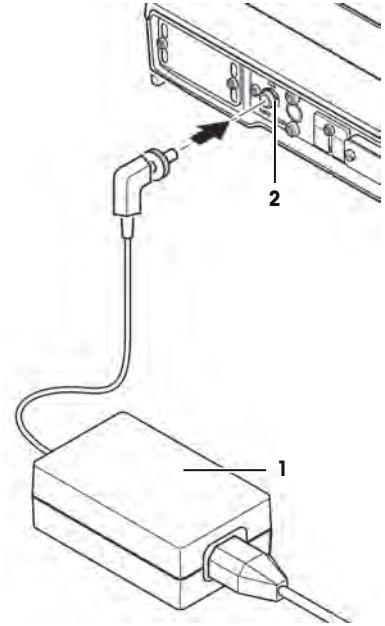
Risk of electric shock

- Ensure that the AC power pack for the balance is only used in accordance with the specifications listed in chapter General Data.
- Your instrument is supplied with a 3-pin power cable with an equipment grounding conductor. Only extension cables which meet this relevant standards and also have an equipment grounding conductor may be used. Intentional disconnection of the equipment grounding conductor is prohibited.

4.5.1 Power Supply for the "S" and "M" Weighing Platform

- Your balance is delivered complete with an AC adapter and a country-specific power supply cable. The AC adapter is suitable for all power supply voltages in the range of: 100 – 240 VAC, 50/60 Hz, for exact specifications, **see** Technical Data (page 33).
- First, check whether the voltage of the power supply matches your local line voltage. If this is not the case, on no account connect the balance to the power, but contact your METTLER TOLEDO sales representative or dealer.
- Guide the cables so that they cannot become damaged and will not be in your way during your daily work! Take care that the AC adapter cannot come into contact with liquids!
- The power plug must be always accessible.
- Before operating, check all cables for damage.

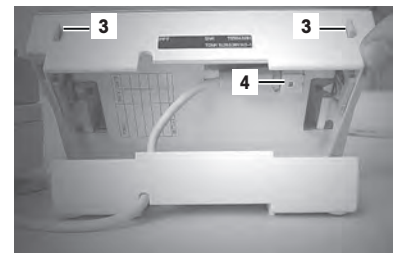
- Plug the AC adapter (1) into the socket (2) in the back of your balance and into the power supply.
- ⇒ After the balance has been connected to the power supply, it carries out a self test and is then ready for operation.



Note

If the display field remains dark, even though the power supply connection functions.

- 1 First disconnect the balance from the power supply.
- 2 Open the terminal.
- 3 Press both buttons (3) on the back of the terminal and open the upper part of the terminal.
- 4 Check that the plug for the terminal cable (4) is connected correctly inside the terminal.



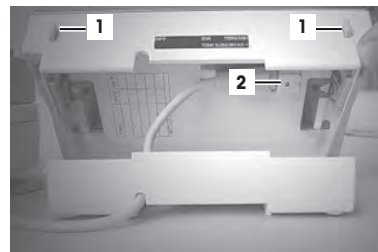
4.5.2 Power Supply for the "L" Weighing Platform

- Your balance is delivered with a country-specific power supply cable.
- First, check whether the voltage of the power supply matches your local line voltage. If this is not the case, on no account connect the balance to the power, but contact your METTLER TOLEDO sales representative or dealer.
- Guide the cables so that they cannot become damaged and will not be in your way during your daily work! Take care that the AC adapter cannot come into contact with liquids!
- The power plug must be always accessible.
- Before operating, check all cables for damage.
- Connect the balance to the power supply.
- ⇒ After the balance has been connected to the power supply, it carries out a self test and is then ready for operation.

Note

If the display field remains dark, even though the power supply connection functions.

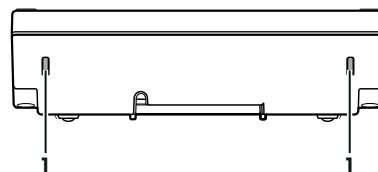
- 1 First disconnect the balance from the power supply.
- 2 Open the terminal.
- 3 Press both buttons (1) on the back of the terminal and open the upper part of the terminal.
- 4 Check that the plug for the terminal cable (2) is connected correctly inside the terminal.



4.6 Optimise the Readability of the Terminal and Location of the Terminal

4.6.1 Setting the Reading Angle

- 1 Press in the two buttons (1) on the back of the terminal.
⇒ The top of the terminal can then be pulled up or pushed down until it engages in the desired position. A total of 3 setting positions are available.
- 2 Move it in an appropriate position.



4.6.2 Removing the Terminal and Placing it Within Range of the Weighing Platform

The terminal is connected to the weighing platform with a cable. The terminal can be removed from the weighing platform and located separately to ensure the optimum setup of your workplace.

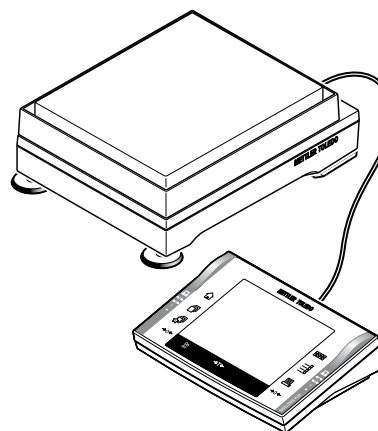
If you would like to place the terminal farther away from the balance, we recommend that you use the extension cable from our accessories range, **see** Accessories (page 58).

- 1 Switch off the balance.
- 2 Disconnect power cable.

4.6.2.1 Setting up the Terminal Separately "S" and "M" Weighing Platform

- 1 Dismantle the terminal (terminal – terminal-support) by removing the 2 screws, if the terminal is mounted.
- 2 Carefully lift the terminal from the terminal support.
- 3 Pull the terminal support out of the weighing platform.
- 4 Tilt the weighing platform high on its side and carefully pull the cable out of the cable opening under the weighing platform.
- 5 Place the terminal in the desired position.

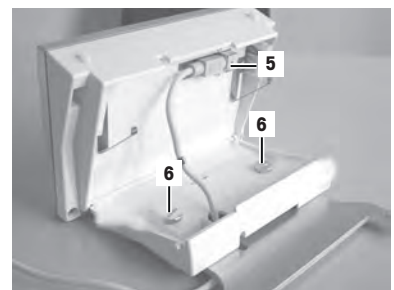
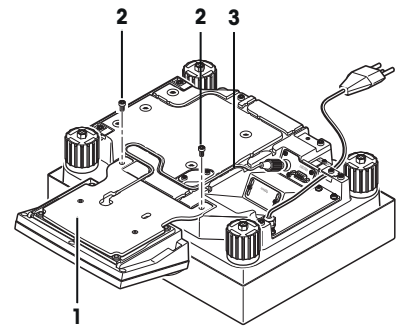
The cable can also be led out the back or the side of the weighing platform.



4.6.2.2 Setting up the Terminal Separately "L" Weighing Platform

- 1 Carefully turn the weighing platform over onto the weighing pan.
- 2 Carefully pull the terminal cable (3) out of the cable channel.
- 3 Remove the screws (2).
- 4 Lift the terminal with terminal support (1) off the weighing platform.
- 5 Open the housing by pressing the 2 buttons (4) for adjusting the terminal.
- 6 Unplug the cable (5) and pull it out of the housing through the opening.
- 7 Remove the 2 knurled screws (6) and detach the terminal support.
- 8 Pull the cable back through the base of the housing and plug it in.
- 9 Close the terminal and place it in the desired position.
- 10 If possible, insert the terminal cable (3) back into the cable channel.
- 11 Turn the balance back over into position.

The cable can also be led out the back or the side of the weighing platform.



4.7 Transporting the Balance

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

- 1 Switch off the balance.
- 2 The balance must be disconnected from the power supply.
- 3 Remove any interface cable from the balance.

4.7.1 Transporting Over Short Distances "S" and "M" Weighing Platform

If you wish to move your balance over a short distance to a new location, proceed as follows.



CAUTION

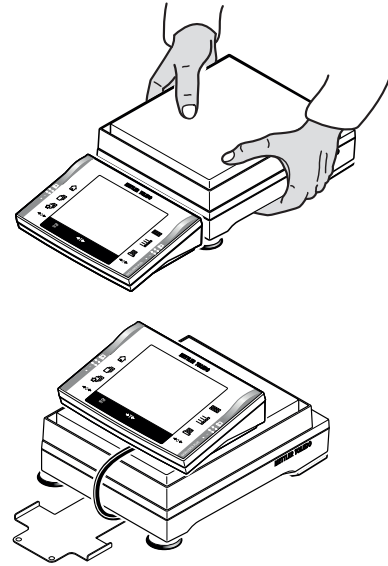
Damage of Device

Never lift the balance by the glass draft shield, as this can cause damage! The draft shield is not fastened to the balance.

The terminal is not permanently connected to the weighing platform and therefore the balance must be carried horizontally.

- Remove the terminal from the terminal support and place the terminal on the weighing pan.

- 1 Hold the weighing platform with both hands and lift horizontally.
- 2 Carry the balance horizontally to the new location, observe the notes in chapter Selecting a Location (page 15).



4.7.2 Transporting Over Short Distances "L" Weighing Platform



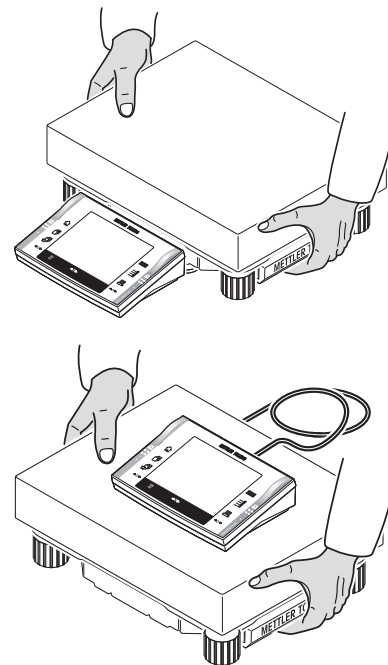
CAUTION

Damage of Device

The terminal is not permanently connected to the weighing platform and therefore the balance must be carried horizontally.

- Remove the terminal from the terminal support and place the terminal on the weighing pan.

- 1 Hold the weighing platform with both hands and lift horizontally.
- 2 Carry the balance horizontally to the new location, observe the notes in chapter Selecting a Location (page 15).



4.7.3 Transporting Over Long Distances

If you want to transport or ship your balance over long distances, or if it is not certain that the balance will be transported upright, use the complete original packaging.

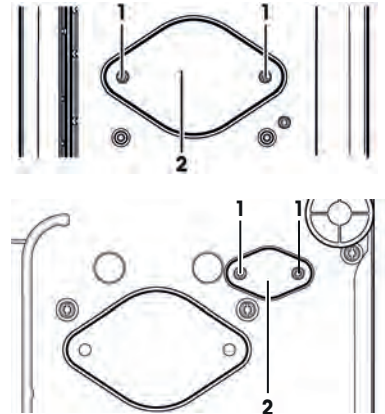
4.8 Below-the-Balance Weighing

Your balance is equipped with a hanger for carrying out weighings below the work surface (weighing below the balance).

- 1 Switch off the balance.
- 2 The balance must be disconnected from the power supply.
- 3 Remove any interface cable from the balance.

4.8.1 Below-the-Balance Weighing "S" and "M" Weighing Platform

- 1 Remove the weighing pan (0.1 mg models).
- 2 Remove the draft shield element (0.1 mg and 10 mg models [S platform only]).
- 3 Remove the weighing pan and pan support.
- 4 **Attention**
Models with a glass draft shield:
Carefully lift the draft shield from the weighing platform and put it aside.
- 5 Lift the terminal from the terminal support.
- 6 Remove the 2 screws between terminal and terminal support, **see** Fastening the Terminal to the Terminal Support with Screws "S" and "M" Weighing Platform (page 17).
- 7 Place the terminal to the side of the weighing platform.
- 8 Remove the terminal support.
- 9 Tilt the weighing platform backwards until the cover plate (2) is visible.
- Attention**
Do not place the weighing platform on the location bolt for the pan support (0.1 mg and 1 mg models).
- 10 Remove the 2 screws (1) and the cover plate (2).
⇒ The hanger is now accessible.
- 11 Return the balance to its normal position and simply reinstall all components in the reverse order.



Note

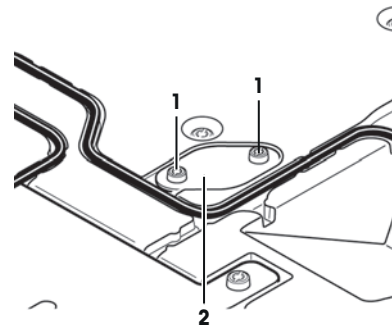
For below-the-balance weighing with the M model (XP16001M, XP16001MDR, XP20001M and XP20000M) you will need hook 11132565 from the accessories range.

4.8.2 Below-the-Balance Weighing "L" Weighing Platform

Note

For below-the-balance weighing you will need hook 11132565 from the accessories range.

- 1 Carefully turn the weighing platform over onto the weighing pan.
- 2 Remove the 2 screws (1) and the cover plate (2).
⇒ The hanger is now accessible.
- 3 Fasten the hooks (optional) with screws.
- 4 Return the balance to its normal position and simply reinstall all components in the reverse order.



5 First Steps

5.1 Switching On / Off

Switching On

- Press «**On/Off**».
- ⇒ The display appears.



Note

If the balance has not been set up exactly horizontally, a warning text will appear shortly after the balance is turned on, prompting you to level the balance.

Switching Off

- Press «**On/Off**» until "Off" appears in the display.



Note

Do not disconnect the balance from the power supply except if you will not be using the balance for an extended period.

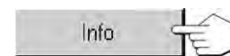
5.2 Leveling the Balance

Your balance has a built-in levelcontrol, that constantly checks the correct horizontal alignment.

When the levelcontrol detects that the level is incorrect, a warning will appear and a warning beep will sound. A status icon will also appear in the upper right-hand corner of the display.

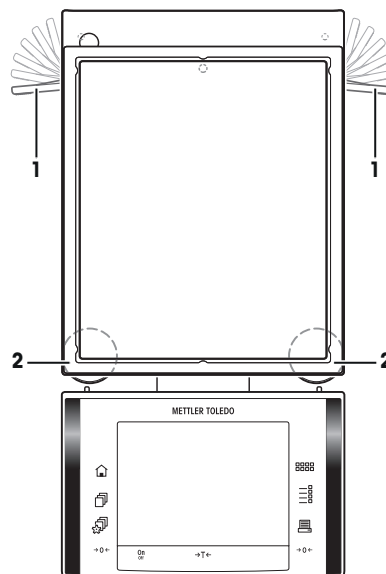
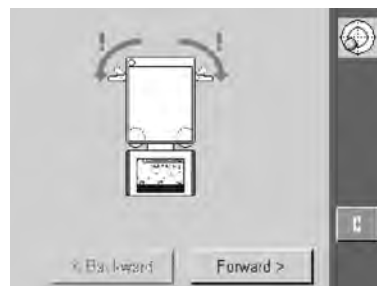


- To start the Leveling Assistant, tap «**Info**».
- ⇒ The Leveling Assistant will guide you step by step through the leveling process.

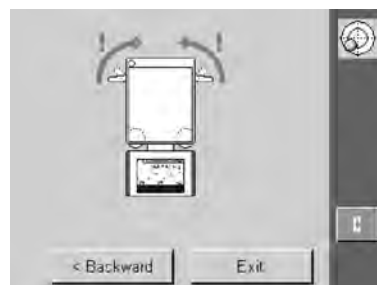
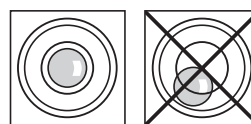
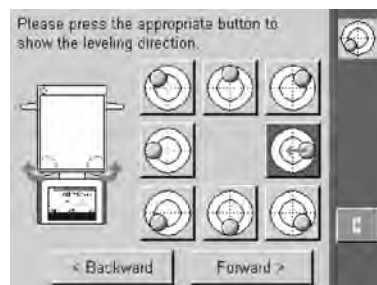


5.2.1 Leveling the Balance 10 mg, 0.1 g and 1 g "S" and "M" Weighing Platform

- 1 The Leveling Assistant will prompt you to loosen the clamps for the safety feet.
- 2 Remove the clamps (1) for the safety feet by turning them outwards.
- 3 Turn the clamps (1) outwards as far as they will go (~ 90°), so that the safety feet can move freely.
- 4 Tap «**Forward** >» after you have loosened the clamps for the safety feet.

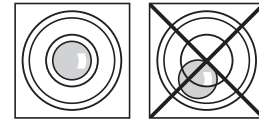
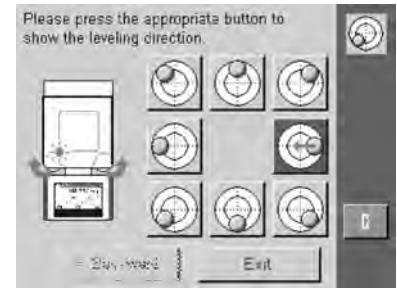


- 1 Watch the levelcontrol located of your balance and press the appropriate button of the current position.
 - ⇒ The Leveling Assistant will now use red arrows to indicate the direction in which you must turn the two footscrews (2).
- 2 Screw the footscrew until the air bubble is in the inner circle.
- 3 Tap «**Forward** >».
- 4 The Leveling Assistant will now prompt you to lock the clamps for the safety feet in place.
- 5 Secure the safety feet by turning the clamps inward as far as they will go.
- 6 Tap «**Exit**».
- ⇒ A message appears that advises you to adjust the balance.
- 7 Confirm with «**OK**».
- ⇒ Status icon will no longer appear and balance returns to normal operation.



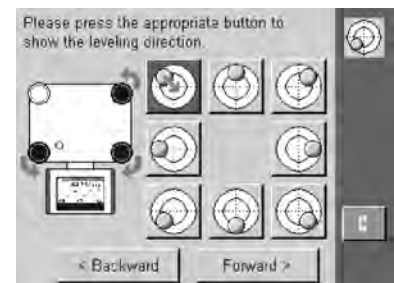
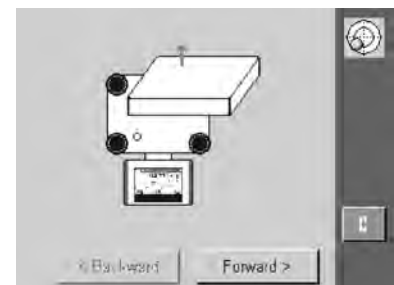
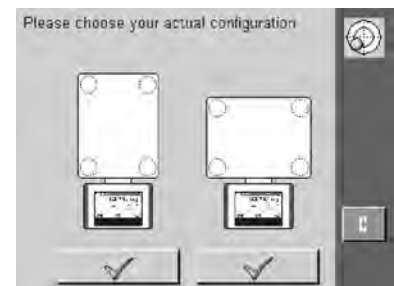
5.2.2 Leveling the Balance 1 mg "S" and "M" Weighing Platform

- 1 Watch the levelcontrol located of your balance and press the appropriate button of the current position.
 - ⇒ The Leveling Assistant will now use red arrows to indicate the direction in which you must turn the two footscrews.
- 2 Screw the footscrew until the air bubble is in the inner circle.
- 3 Tap «Exit».
 - ⇒ A message appears that advises you to adjust the balance.
- 4 Confirm with «OK».
 - ⇒ Status icon will no longer appear and balance returns to normal operation.

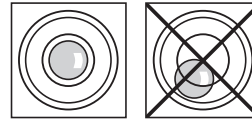


5.2.3 Leveling the Balance "L" Weighing Platform

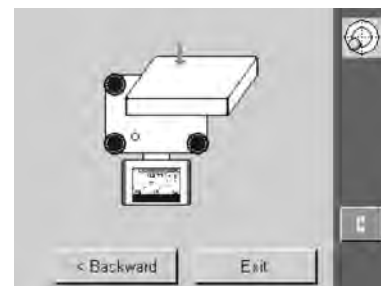
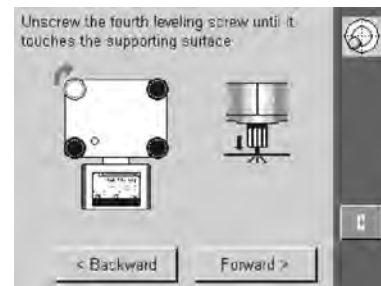
- 1 Touch the button that matches your site and your configuration.
- 2 Remove the weighing pan so you can monitor the level indicator.
- 3 Tap «Forward >».
- 4 Turn the leveling foot all the way up, in the direction of the red arrow.
- 5 Tap «Forward >».
- 6 Watch the levelcontrol located of your balance and press the appropriate button of the current position.
- 7 The Leveling Assistant will now use red arrows to indicate the direction in which you must turn the footscrews.
- 8 Screw the footscrew until the air bubble is in the inner circle.
- 9 Tap «Forward >».



- 1 Touch the button that matches your site and your configuration.
- 2 Remove the weighing pan so you can monitor the level indicator.
- 3 Tap «**Forward** >».
- 4 Turn the leveling foot all the way up, in the direction of the red arrow.
- 5 Tap «**Forward** >».
- 6 Watch the levelcontrol located of your balance and press the appropriate button of the current position.
- 7 The Leveling Assistant will now use red arrows to indicate the direction in which you must turn the footscrews.
- 8 Screw the footscrew until the air bubble is in the inner circle.
- 9 Tap «**Forward** >».



- 1 Unscrew the footscrew until it **lightly** touches the supporting surface.
- 2 Tap «**Forward** >».
- 3 Tap «**Exit**».
- ⇒ A message appears that advises you to adjust the balance.
- 4 Confirm with «**OK**».
- ⇒ Status icon will no longer appear and balance returns to normal operation.



6 Maintenance

6.1 Cleaning

Periodically clean the weighing pan, draft shield element, bottom plate, 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

Damage of balance

- The balance must be disconnected from the power supply.
- Ensure that no liquid comes into contact with the balance, the terminal or the AC adapter.
- Never open the balance, terminal or AC adapter – they contain no components, which can be cleaned, repaired or replaced by the user.



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 Remove the draft shield for thoroughly cleaning the draft shield glasses.
- 2 When you replace these parts, make sure they are 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.

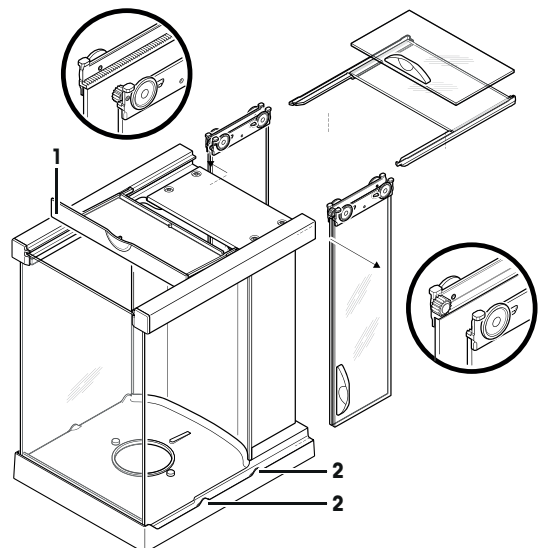
6.2 Cleaning the Draft Shield (0.1 mg and 1 mg Models)

- 1 Remove the weighing pan, draft-shield element (0.1 mg models), pan support (1 mg models).
- 2 Lift the draft shield off the balance and place it on a clean surface.
- 3 Remove the bottom plate.
- 4 Push all the glasses back as far as they will go.
- 5 Turn the cover (1) to the front.
- 6 Pull the top glass toward the back and off.
- 7 Pull the side glasses toward the back and off.

Attention

Always hold the 2 **parallel** guided glasses (side glasses and top glasses) together with one hand.

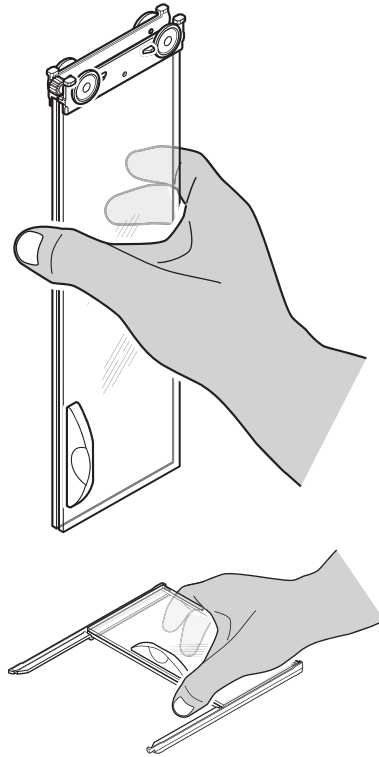
- 8 Clean all parts then reassemble the draft shield in the reverse order.



Insert glasses

Attention

Always hold the 2 **parallel** guided glasses (side glasses and top glasses) together and parallel with one hand. The side glasses must not be placed outside the projections (2).



6.3 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.



7 Technical Data

7.1 General Data "S" and "M" Weighing Platform



CAUTION

Use only with a tested AC Adapter with SELV output current.
Ensure correct polarity \ominus — \bullet — \oplus

Power supply

Power supply connector with AC/DC adapter:	11107909 Primary: 100-240 VAC, -15%/+10%, 50/60 Hz Secondary: 12 VDC \pm 3%, 2.0 A (with electronic overload protection)
Cable to AC adapter:	Design: 3-core, with country-specific plug Note Make sure the power supply plug is freely accessible
Power supply to the balance:	12 VDC \pm 3%, 2.0 A, maximum ripple: 80 mVDCpp

Protection and standards

Overvoltage category:	Class II
Degree of pollution:	2
Protection:	IP54, in use with weighing pan inserted, 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% at 31 °C, linearly decreasing to 50% at 40 °C, non-condensing

Materials

Housing:	Die-cast aluminum, laquered, plastic and chrome steel
Terminal:	Die-cast zinc, chromed and plastics
Weighing pan:	Chrome-nickel steel X2CrNiMo-17-12-2
Draft shield:	Aluminium, plastic, chrome steel and glas
Draft shield element:	Die-cast zinc, chromed (10 mg models, S-platform) Chrome steel X2CrNiMo-17-13-2 (0.1 mg models)

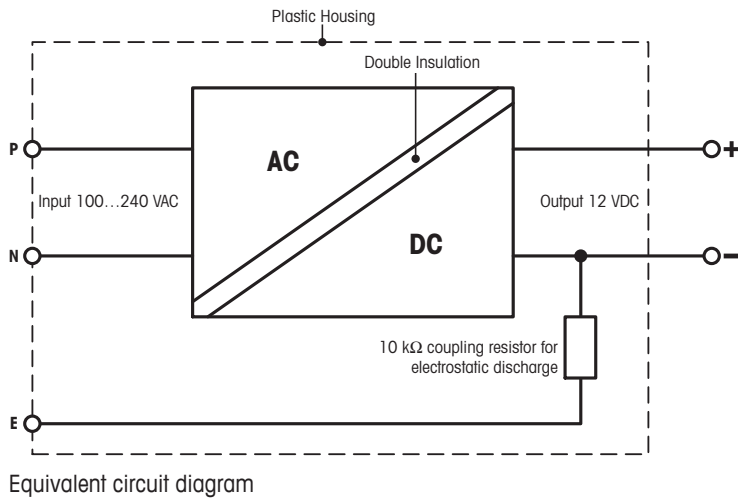
7.2 Explanatory Notes for the METTLER TOLEDO AC Adapter

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 k Ω , 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.



7.3 General Data "L" Weighing Platform

Power supply

Power supply: 115-240 VAC, -15%/+10%, 50/60 Hz, 0.4 A
 Power cable: 3-core, with country-specific plug

Protection and standards

Overvoltage category: Class II
 Degree of pollution: 2
 Protection: IP54, in use with weighing pan inserted, 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% at 31 °C, linearly decreasing to 50% at 40 °C, non-condensing

Materials

Housing: Sheet aluminum, die cast, laquered, plastic and chrome steel
 Terminal: Die-cast zinc, chromed and plastics
 Weighing pan: Chrome-nickel steel X5CrNi18-10

7.4 Model-specif Data

7.4.1 Balances with Readability of 0.1 mg, "S" Platform with Draft Shield

		XP204S	XP404S	XP404SDR
Limit values				
Maximum capacity		210 g	410 g	410 g
Readability		0.1 mg	0.1 mg	1 mg
Tare range (from...to)		0 ... 210 g	0 ... 410 g	0 ... 410 g
Maximum capacity, fine range		–	–	80 g
Readability, fine range		–	–	0.1 mg
Repeatability (at nominal load)	sd	0.2 mg	0.1 mg	0.6 mg
Repeatability, fine range (at nominal load)	sd	–	–	0.1 mg
Linearity deviation		0.2 mg	0.2 mg	0.6 mg
Eccentricity deviation (test load)		0.3 mg (100 g)	0.3 mg (200 g)	1 mg (200 g)
Sensitivity offset (test weight)		1 mg (200 g)	2 mg (400 g)	2 mg (400 g)
Sensitivity temperature drift ¹⁾		0.00015%/°C	0.00015%/°C	0.00015%/°C
Sensitivity stability		0.00025%/a	0.00025%/a	0.00025%/a
Typical values				
Repeatability	sd	0.12 mg	0.06 mg	4 mg
Repeatability, fine range	sd	–	–	0.06 mg
Linearity deviation		0.07 mg	0.07 mg	0.07 mg
Eccentric deviation (test load)		0.08 mg (100 g)	0.08 mg (200 g)	0.08 mg (200 g)
Sensitivity offset (test load)		0.4 mg (200 g)	0.48 mg (400 g)	0.48 mg (400 g)
Minimum sample weight (according to USP)		360 mg	180 mg	1200 mg
Minimum sample weight (according to USP), fine range		–	–	18 mg
Minimum sample weight (U=1%, k=2)		24 mg	12 mg	80 mg
Minimum sample weight (U=1%, k=2), fine range		–	–	12 mg
Settling time		2 s	2 s	2 s
Dimensions				
Balance dimensions (WxDxH)		214x395x363 mm	214x395x363 mm	214x395x363 mm
Weighing pan dimensions		90 mm (Ø)	90 mm (Ø)	90 mm (Ø)
Typical uncertainties and supplementary data				
Repeatability	sd	0.12mg+0.000015%·R-gr	0.06mg+0.000005%·R-gr	4mg+0.000025%·Rgr
Repeatability, fine range	sd	–	–	0.06mg+0.000025%·R-gr
Differential linearity deviation	sd	$\sqrt{(6pg \cdot Rnt)}$	$\sqrt{(3pg \cdot Rnt)}$	$\sqrt{(3pg \cdot Rnt)}$
Differential eccentric load deviation	sd	0.00004%·Rnt	0.00002%·Rnt	0.00002%·Rnt
Sensitivity offset	sd	0.0001%·Rnt	0.00006%·Rnt	0.00006%·Rnt
Minimum sample weight (according to USP)		360mg+0.045%·Rgr	180mg+0.015%·Rgr	1200mg+0.075%·Rgr
Minimum sample weight (according to USP), fine range		–	–	18mg+0.075%·Rgr
Minimum sample weight (U=1%, k=2)		24mg+0.003%·Rgr	12mg+0.001%·Rgr	80mg+0.005%·Rgr
Minimum sample weight (U=1%, k=2), fine range		–	–	12mg+0.005%·Rgr
Interface update rate		23 /s	23 /s	23 /s
Usable height of draft shield		248 mm	248 mm	248 mm
Weight of balance		8.2 kg	8.2 kg	8.2 kg
Number of built-in reference weights		1	1	1
Weights for routine testing				
OIML CarePac		200 g F2, 10 g F1	200 g F2, 20 g F1	200 g F2, 20 g F1
	Weights	#11123001	#11123000	#11123000
ASTM CarePac		200 g 1, 10 g 1	200 g 1, 20 g 1	200 g 1, 20 g 1
	Weights	#11123101	#11123100	#11123100

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

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

7.4.2 Balances with Readability of 1 mg, "S" Platform with Draft Shield

		XP203S	XP603S	XP603SDR
Limit values				
Maximum capacity		210 g	610 mg	610 g
Readability		1 mg	1 mg	10 mg
Tare range (from...to)		0 ... 210 g	0 ... 610 g	0 ... 610 g
Maximum capacity, fine range		–	–	120 g
Readability, fine range		–	–	1 mg
Repeatability (at nominal load)	sd	0.9 mg	0.9 mg	6 mg
Repeatability, fine range (at nominal load)	sd	–	–	1 mg
Linearity deviation		2 mg	2 mg	6 mg
Eccentricity deviation (test load)		3 mg (200 g)	3 mg (200 g)	10 mg (200 g)
Sensitivity offset (test weight)		5 mg (200 g)	4.5 mg (600 g)	9 mg (600 g)
Sensitivity temperature drift ¹⁾		0.0005%/°C	0.0002%/°C	0.0002%/°C
Sensitivity stability		0.0025%/a	0.001%/a	0.001%/a
Typical values				
Repeatability	sd	0.5 mg	0.5 mg	4 mg
Repeatability, fine range	sd	–	–	0.8 mg
Linearity deviation		0.65 mg	0.7 mg	0.7 mg
Eccentric deviation (test load)		0.6 mg (200 g)	0.8 mg (200 g)	0.8 mg (200 g)
Sensitivity offset (test load)		3.2 mg (400 g)	2.4 mg (600 g)	6 mg (600 g)
Minimum sample weight (according to USP)		1500 mg	1.5 g	12 g
Minimum sample weight (according to USP), fine range		–	–	2.4 g
Minimum sample weight (U=1%, k=2)		100 mg	100 mg	800 mg
Minimum sample weight (U=1%, k=2), fine range		–	–	160 mg
Settling time		1.5 s	1.5 s	1.5 s
Dimensions				
Balance dimensions (WxDxH)		198x392x276 mm	198x392x276 mm	198x392x276 mm
Weighing pan dimensions		127x127 mm (WxD)	127x127 mm (WxD)	127x127 mm (WxD)
Typical uncertainties and supplementary data				
Repeatability	sd	0.5mg+0.00008%·Rgr	0.5mg+0.000025%·Rgr	4mg+0.00015%·Rgr
Repeatability, fine range	sd	–	–	0.8mg
Differential linearity deviation	sd	$\sqrt{(500\text{pg}\cdot\text{Rnt})}$	$\sqrt{(200\text{pg}\cdot\text{Rnt})}$	$\sqrt{(200\text{pg}\cdot\text{Rnt})}$
Differential eccentric load deviation	sd	0.00015%·Rnt	0.0002%·Rnt	0.0002%·Rnt
Sensitivity offset	sd	0.0008%·Rnt	0.0002%·Rnt	0.0005%·Rnt
Minimum sample weight (according to USP)		1500mg+0.24%·Rgr	1.5g+0.075%·Rgr	12g+0.45%·Rgr
Minimum sample weight (according to USP), fine range		–	–	2.4g
Minimum sample weight (U=1%, k=2)		100mg+0.016%·Rgr	100mg+0.005%·Rgr	800mg+0.03%·Rgr
Minimum sample weight (U=1%, k=2), fine range		–	–	160mg
Interface update rate		23 /s	23 /s	23 /s
Usable height of draft shield		175 mm	175 mm	175 mm
Weight of balance		7.7 kg	7.7 kg	7.7 kg
Number of built-in reference weights		1	1	1
Weights for routine testing				
OIML CarePac		200 g F2, 10 g F1	500 g F2, 20 g F1	500 g F2, 20 g F1
Weights		#11123001	#11123007	#11123007

	XP203S	XP603S	XP603SDR
ASTM CarePac	200 g 1, 10 g 1	500 g 1, 20 g 1	500 g 1, 20 g 1
Weights	#11123101	#11123107	#11123107

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

¹⁾ In the temperature range 10...30 °C

	XP1203S	XP2003SDR	XP5003SDR
Limit values			
Maximum capacity	1210 g	2.1 kg	5.1 kg
Readability	1 mg	10 mg	10 mg
Tare range (from...to)	0 ... 1210 g	0 ... 2.1 kg	0 ... 5.1 kg
Maximum capacity, fine range	–	0.5 kg	1 kg
Readability, fine range	–	1 mg	1 mg
Repeatability (at nominal load)	sd 0.8 mg	6 mg	6 mg
Repeatability, fine range (at nominal load)	sd –	1 mg	1 mg
Linearity deviation	2 mg	6 mg	6 mg
Eccentricity deviation (test load)	3 mg (500 g)	10 mg (1 kg)	10 mg (2 kg)
Sensitivity offset (test weight)	6 mg (1200 g)	10 mg (2 kg)	20 mg (5 kg)
Sensitivity temperature drift ¹⁾	0.0002%/°C	0.0003%/°C	0.0003%/°C
Sensitivity stability	0.001%/a	0.0025%/a	0.0015%/a
Typical values			
Repeatability	sd 0.4 mg	4 mg	4 mg
Repeatability, fine range	sd –	0.6 mg	0.6 mg
Linearity deviation	0.7 mg	0.7 mg	1 mg
Eccentric deviation (test load)	1 mg (500 g)	0.6 mg (1 kg)	0.6 mg (2 kg)
Sensitivity offset (test load)	2.9 mg (1200 g)	3.2 mg (2 kg)	10 mg (5 kg)
Minimum sample weight (according to USP)	1.2 g	12 g	12 g
Minimum sample weight (according to USP), fine range	–	1.8 g	1.8 g
Minimum sample weight (U=1%, k=2)	80 mg	800 mg	800 mg
Minimum sample weight (U=1%, k=2), fine range	–	120 mg	120 mg
Settling time	1.5 s	2 s	2 s
Dimensions			
Balance dimensions (WxDxH)	198x392x276 mm	214x395x363 mm	214x395x363 mm
Weighing pan dimensions	127x127 mm (WxD)	127x127 mm (WxD)	127x127 mm (WxD)
Typical uncertainties and supplementary data			
Repeatability	sd 0.4mg+0.000015%·Rgr	4mg+0.00005%·Rgr	4mg+0.00002%·Rgr
Repeatability, fine range	sd –	0.6mg+0.00004%·Rgr	0.6mg+0.00002%·Rgr
Differential linearity deviation	sd $\sqrt{(100\text{pg}\cdot\text{Rnt})}$	$\sqrt{(60\text{pg}\cdot\text{Rnt})}$	$\sqrt{(50\text{pg}\cdot\text{Rnt})}$
Differential eccentric load deviation	sd 0.0001%·Rnt	0.00003%·Rnt	0.000015%·Rnt
Sensitivity offset	sd 0.00012%·Rnt	0.00008%·Rnt	0.0001%·Rnt
Minimum sample weight (according to USP)	1.2g+0.05%·Rgr	12g+0.15%·Rgr	12g+0.06%·Rgr
Minimum sample weight (according to USP), fine range	–	1.8g+0.12%·Rgr	1.8g+0.06%·Rgr
Minimum sample weight (U=1%, k=2)	80mg+0.003%·Rgr	800mg+0.01%·Rgr	800mg+0.004%·Rgr
Minimum sample weight (U=1%, k=2), fine range	–	120mg+0.008%·Rgr	120mg+0.004%·Rgr
Interface update rate	23 /s	23 /s	23 /s
Usable height of draft shield	175 mm	–	–
Weight of balance	7.7 kg	8.6 kg	8.6 kg
Number of built-in reference weights	1	1	1
Weights for routine testing			
OIML CarePac	1000 g F2, 50 g F2	2000 g F2, 100 g F2	5000 g F2, 200 g F2
Weights	#11123008	#11123009	#11123011

	XP1203S	XP2003SDR	XP5003SDR
ASTM CarePac	1000 g 1, 50 g 1	2000 g 1, 100 g 1	5000 g 1, 200 g 1
Weights	#11123108	#11123109	#11123111

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

¹⁾ In the temperature range 10...30 °C

7.4.3 Balances with Readability of 10 mg, "S" Platform with Draft Shield Element

	XP802S	XP1202S	XP2002S
Limit values			
Maximum capacity	810 g	1210 g	2.1 kg
Readability	10 mg	10 mg	10 mg
Tare range (from...to)	0 ... 810 g	0 ... 1210 g	0 ... 2.1 kg
Repeatability (at nominal load)	sd 8 mg	8 mg	8 mg
Linearity deviation	20 mg	20 mg	20 mg
Eccentricity deviation (test load)	20 mg (500 g)	20 mg (500 g)	30 mg (1 kg)
Sensitivity offset (test weight)	60 mg (800 g)	60 mg (1200 g)	60 mg (2 kg)
Sensitivity temperature drift ¹⁾	0.0003%/°C	0.0003%/°C	0.0003%/°C
Sensitivity stability	0.0025%/a	0.0025%/a	0.0025%/a
Typical values			
Repeatability	sd 4 mg	4 mg	4 mg
Linearity deviation	7 mg	7 mg	7 mg
Eccentric deviation (test load)	3 mg (500 g)	3 mg (500 g)	3 mg (1 kg)
Sensitivity offset (test load)	32 mg (800 g)	24 mg (1200 g)	32 mg (2 kg)
Minimum sample weight (according to USP)	12 g	12 g	12 g
Minimum sample weight (U=1%, k=2)	800 mg	800 mg	800 mg
Settling time	1.2 s	1.2 s	1.2 s
Dimensions			
Balance dimensions (WxDxH)	194x392x96 mm	194x392x96 mm	194x392x96 mm
Weighing pan dimensions	170x205 mm (WxD)	170x205 mm (WxD)	170x205 mm (WxD)
Typical uncertainties and supplementary data			
Repeatability	sd 4mg+0.00025%·Rgr	4mg+0.00015%·Rgr	4mg+0.0001%·Rgr
Differential linearity deviation	sd $\sqrt{(15ng \cdot Rnt)}$	$\sqrt{(10ng \cdot Rnt)}$	$\sqrt{(6ng \cdot Rnt)}$
Differential eccentric load deviation	sd 0.0003%·Rnt	0.0003%·Rnt	0.00015%·Rnt
Sensitivity offset	sd 0.002%·Rnt	0.001%·Rnt	0.0008%·Rnt
Minimum sample weight (according to USP)	12g+0.75%·Rgr	12g+0.45%·Rgr	12g+0.3%·Rgr
Minimum sample weight (U=1%, k=2)	800mg+0.05%·Rgr	800mg+0.03%·Rgr	800mg+0.02%·Rgr
Interface update rate	23 /s	23 /s	23 /s
Weight of balance	7.1 kg	6.6 kg	7.1 kg
Number of built-in reference weights	1	1	1
Weights for routine testing			
OIML CarePac	500 g F2, 20 g F1	1000 g F2, 50 g F2	2000 g F2, 100 g F2
Weights	#11123007	#11123008	#11123009
ASTM CarePac	500 g 1, 20 g 1	1000 g 1, 50 g 1	2000 g 1, 100 g 1
Weights	#11123107	#11123108	#11123109

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

¹⁾ In the temperature range 10...30 °C

	XP4002S	XP4002SDR	XP6002S
Limit values			
Maximum capacity	4.1 kg	4.1 kg	6.1 kg
Readability	10 mg	100 mg	10 mg

		XP4002S	XP4002SDR	XP6002S
Tare range (from...to)		0 ... 4.1 kg	0 ... 4.1 kg	0 ... 6.1 kg
Maximum capacity, fine range		–	0.8 kg	–
Readability, fine range		–	10 mg	–
Repeatability (at nominal load)	sd	8 mg	80 mg	8 mg
Repeatability, fine range (at nominal load)	sd	–	8 mg	–
Linearity deviation		20 mg	60 mg	20 mg
Eccentricity deviation (test load)		30 mg (2 kg)	100 mg (2 kg)	30 mg (2 kg)
Sensitivity offset (test weight)		60 mg (4 kg)	60 mg (4 kg)	60 mg (6 kg)
Sensitivity temperature drift ¹⁾		0.0003%/°C	0.0003%/°C	0.0003%/°C
Sensitivity stability		0.0015%/a	0.0015%/a	0.0015%/a
Typical values				
Repeatability	sd	4 mg	40 mg	4 mg
Repeatability, fine range	sd	–	40 mg	–
Linearity deviation		7 mg	7 mg	7 mg
Eccentric deviation (test load)		8 mg (2 kg)	6 mg (2 kg)	8 mg (2 kg)
Sensitivity offset (test load)		32 mg (4 kg)	32 mg (4 kg)	30 mg (6 kg)
Minimum sample weight (according to USP)		12 g	120 g	12 g
Minimum sample weight (according to USP), fine range		–	12 g	–
Minimum sample weight (U=1%, k=2)		800 mg	8 g	800 mg
Minimum sample weight (U=1%, k=2), fine range		–	0.8 g	–
Settling time		1.2 s	1.2 s	1.2 s
Dimensions				
Balance dimensions (WxDxH)		194x392x96 mm	194x392x96 mm	194x392x96 mm
Weighing pan dimensions		170x205 mm (WxD)	170x205 mm (WxD)	170x205 mm (WxD)
Typical uncertainties and supplementary data				
Repeatability	sd	4mg+0.00005%·Rgr	40mg+0.00025%·Rgr	4mg+0.00003%·Rgr
Repeatability, fine range	sd	–	40mg+0.00025%·Rgr	–
Differential linearity deviation	sd	$\sqrt{(3ng \cdot Rnt)}$	$\sqrt{(3ng \cdot Rnt)}$	$\sqrt{(2ng \cdot Rnt)}$
Differential eccentric load deviation	sd	0.0002%·Rnt	0.00015%·Rnt	0.0002%·Rnt
Sensitivity offset	sd	0.0004%·Rnt	0.0004%·Rnt	0.00025%·Rnt
Minimum sample weight (according to USP)		12g+0.15%·Rgr	120g+0.75%·Rgr	12g+0.09%·Rgr
Minimum sample weight (according to USP), fine range		–	12g+0.75%·Rgr	–
Minimum sample weight (U=1%, k=2)		800mg+0.01%·Rgr	8g+0.05%·Rgr	800mg+0.006%·Rgr
Minimum sample weight (U=1%, k=2), fine range		–	0.8g+0.05%·Rgr	–
Interface update rate		23 /s	23 /s	23 /s
Weight of balance		6.6 kg	7.1 kg	6.6 kg
Number of built-in reference weights		1	1	1
Weights for routine testing				
OIML CarePac		2000 g F2, 200 g F2	2000 g F2, 200 g F2	5000 g F2, 200 g F2
	Weights	#11123010	#11123010	#11123011
ASTM CarePac		2000 g 4, 200 g 4	2000 g 4, 200 g 4	5000 g 4, 200 g 4
	Weights	#11123110	#11123110	#11123111

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

¹⁾ In the temperature range 10...30 °C

		XP6002SDR	XP8002S
Limit values			
Maximum capacity		6.1 kg	8.1 kg
Readability		100 mg	10 mg
Tare range (from...to)		0 ... 6.1 kg	0 ... 8.1 kg

		XP6002SDR	XP8002S
Maximum capacity, fine range		1.2 kg	–
Readability, fine range		10 mg	–
Repeatability (at nominal load)	sd	60 mg	8 mg
Repeatability, fine range (at nominal load)	sd	8 mg	–
Linearity deviation		60 mg	20 mg
Eccentricity deviation (test load)		100 mg (2 kg)	40 mg (5 kg)
Sensitivity offset (test weight)		150 mg (6 kg)	60 mg (8 kg)
Sensitivity temperature drift ¹⁾		0.0003%/°C	0.00025%/°C
Sensitivity stability		0.0015%/a	0.0015%/a
Typical values			
Repeatability	sd	40 mg	4 mg
Repeatability, fine range	sd	5 mg	–
Linearity deviation		7 mg	7 mg
Eccentric deviation (test load)		8 mg (2 kg)	10 mg (5 kg)
Sensitivity offset (test load)		30 mg (6 kg)	32 mg (8 kg)
Minimum sample weight (according to USP)		120 g	12 g
Minimum sample weight (according to USP), fine range		15 g	–
Minimum sample weight (U=1%, k=2)		8 g	800 mg
Minimum sample weight (U=1%, k=2), fine range		1 g	–
Settling time		1.2 s	1.5 s
Dimensions			
Balance dimensions (WxDxH)		194x392x96 mm	194x392x96 mm
Weighing pan dimensions		170x205 mm (WxD)	170x205 mm (WxD)
Typical uncertainties and supplementary data			
Repeatability	sd	40mg+0.00015%·Rgr	4mg+0.000025%·Rgr
Repeatability, fine range	sd	5mg	–
Differential linearity deviation	sd	$\sqrt{(2ng \cdot Rnt)}$	$\sqrt{(1.5ng \cdot Rnt)}$
Differential eccentric load deviation	sd	0.0002%·Rnt	0.0001%·Rnt
Sensitivity offset	sd	0.00025%·Rnt	0.0002%·Rnt
Minimum sample weight (according to USP)		120g+0.45%·Rgr	12g+0.075%·Rgr
Minimum sample weight (according to USP), fine range		15g	–
Minimum sample weight (U=1%, k=2)		8g+0.03%·Rgr	800mg+0.005%·Rgr
Minimum sample weight (U=1%, k=2), fine range		1g	–
Interface update rate		23 /s	23 /s
Weight of balance		6.6 kg	6.6 kg
Number of built-in reference weights		1	1
Weights for routine testing			
OIML CarePac		5000 g F2, 200 g F2	5000 g F2, 200 g F2
	Weights	#11123011	#11123011
ASTM CarePac		5000 g 4, 200 g 4	5000 g 4, 200 g 4
	Weights	#11123111	#11123111

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

¹⁾ In the temperature range 10...30 °C

		XP10002S	XP10002SDR	XP12002SDR
Limit values				
Maximum capacity		10.1 kg	10.1 kg	12.1 kg
Readability		10 mg	100 mg	100 mg
Tare range (from...to)		0 ... 10.1 kg	0 ... 10.1 kg	0 ... 12.1 kg
Maximum capacity, fine range		–	2 kg	2.4 kg

		XP10002S	XP10002SDR	XP12002SDR
Readability, fine range		–	10 mg	10 mg
Repeatability (at nominal load)	sd	8 mg	60 mg	60 mg
Repeatability, fine range (at nominal load)	sd	–	8 mg	10 mg
Linearity deviation		20 mg	50 mg	60 mg
Eccentricity deviation (test load)		40 mg (5 kg)	100 mg (5 kg)	100 mg (5 kg)
Sensitivity offset (test weight)		50 mg (10 kg)	100 mg (10 kg)	96 mg (12 kg)
Sensitivity temperature drift ¹⁾		0.00025%/°C	0.00025%/°C	0.00025%/°C
Sensitivity stability		0.0015%/a	0.0015%/a	0.00015%/a
Typical values				
Repeatability	sd	4 mg	40 mg	40 mg
Repeatability, fine range	sd	–	5 mg	6 mg
Linearity deviation		6.5 mg	4 mg	7 mg
Eccentric deviation (test load)		10 mg (5 kg)	10 mg (5 kg)	10 mg (5 kg)
Sensitivity offset (test load)		30 mg (10 kg)	30 mg (10 kg)	60 mg (12 kg)
Minimum sample weight (according to USP)		12 g	120 g	120 g
Minimum sample weight (according to USP), fine range		–	15 g	18 g
Minimum sample weight (U=1%, k=2)		800 mg	8 g	8 g
Minimum sample weight (U=1%, k=2), fine range		–	1 g	1.2 g
Settling time		1.5 s	1.5 s	1.8 s
Dimensions				
Balance dimensions (WxDxH)		194x392x96 mm	194x392x96 mm	194x392x96 mm
Weighing pan dimensions		170x205 mm (WxD)	170x205 mm (WxD)	170x205 mm (WxD)
Typical uncertainties and supplementary data				
Repeatability	sd	4mg+0.00002%·Rgr	40mg+0.0001%·Rgr	40mg+0.00008%·Rgr
Repeatability, fine range	sd	–	5mg	6mg+0.00008%·Rgr
Differential linearity deviation	sd	$\sqrt{(1\text{ng} \cdot \text{Rnt})}$	$\sqrt{(400\text{pg} \cdot \text{Rnt})}$	$\sqrt{(1\text{ng} \cdot \text{Rnt})}$
Differential eccentric load deviation	sd	0.0001%·Rnt	0.0001%·Rnt	0.0001%·Rnt
Sensitivity offset	sd	0.00015%·Rnt	0.00015%·Rnt	0.00025%·Rnt
Minimum sample weight (according to USP)		12g+0.06%·Rgr	120g+0.3%·Rgr	120g+0.24%·Rgr
Minimum sample weight (according to USP), fine range		–	15g	18g+0.24%·Rgr
Minimum sample weight (U=1%, k=2)		800mg+0.004%·Rgr	8g+0.02%·Rgr	8g+0.016%·Rgr
Minimum sample weight (U=1%, k=2), fine range		–	1g	1.2g+0.016%·Rgr
Interface update rate		23 /s	23 /s	23 /s
Weight of balance		6.6 kg	6.6 kg	8.1 kg
Number of built-in reference weights		1	1	1
Weights for routine testing				
OIML Single Weights		500 g F2	500 g F2	500 g F2
	Small	#11118203	#11118203	#11118203
OIML Single Weights		10000 g F2	10000 g F2	10000 g F2
	Large	#11118211	#11118211	#11118211

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

¹⁾ In the temperature range 10...30 °C

7.4.4 Balances with Readability of 0.1 g, "S" Platform

	XP2001S	XP4001S	XP6001S
Limit values			
Maximum capacity	2.1 kg	4.1 kg	6.1 kg
Readability	100 mg	100 mg	100 mg
Tare range (from...to)	0 ... 2.1 kg	0 ... 4.1 kg	0 ... 6.1 kg

		XP2001S	XP4001S	XP6001S
Repeatability (at nominal load)	sd	80 mg	80 mg	80 mg
Linearity deviation		60 mg	60 mg	60 mg
Eccentricity deviation (test load)		100 mg (1 kg)	200 mg (2 kg)	200 mg (2 kg)
Sensitivity offset (test weight)		150 mg (2 kg)	240 mg (4 kg)	240 mg (6 kg)
Sensitivity temperature drift ¹⁾		0.0015%/°C	0.0015%/°C	0.0015%/°C
Sensitivity stability		0.005%/a	0.005%/a	0.005%/a
Typical values				
Repeatability	sd	40 mg	40 mg	40 mg
Linearity deviation		20 mg	13 mg	19 mg
Eccentric deviation (test load)		20 mg (1 kg)	32 mg (2 kg)	32 mg (2 kg)
Sensitivity offset (test load)		80 mg (2 kg)	160 mg (4 kg)	140 mg (6 kg)
Minimum sample weight (according to USP)		120 g	120 g	120 g
Minimum sample weight (U=1%, k=2)		8 g	8 g	8 g
Settling time		0.8 s	0.8 s	0.8 s
Dimensions				
Balance dimensions (WxDxH)		194x392x96 mm	194x392x96 mm	194x392x96 mm
Weighing pan dimensions		190x223 mm (WxD)	190x223 mm (WxD)	190x223 mm (WxD)
Typical uncertainties and supplementary data				
Repeatability	sd	40mg+0.001%·Rgr	40mg+0.0005%·Rgr	40mg+0.0003%·Rgr
Differential linearity deviation	sd	√(50ng·Rnt)	√(10ng·Rnt)	√(15ng·Rnt)
Differential eccentric load deviation	sd	0.001%·Rnt	0.0008%·Rnt	0.0008%·Rnt
Sensitivity offset	sd	0.002%·Rnt	0.002%·Rnt	0.0012%·Rnt
Minimum sample weight (according to USP)		120g+3%·Rgr	120g+1.5%·Rgr	120g+0.9%·Rgr
Minimum sample weight (U=1%, k=2)		8g+0.2%·Rgr	8g+0.1%·Rgr	8g+0.06%·Rgr
Interface update rate		23 /s	23 /s	23 /s
Weight of balance		6.6 kg	6.6 kg	6.6 kg
Number of built-in reference weights		1	1	1
Weights for routine testing				
OIML CarePac		2000 g F2, 100 g F2	2000 g F2, 200 g F2	5000 g F2, 200 g F2
	Weights	#11123009	#11123010	#11123011
ASTM CarePac		2000 g 1, 100 g 1	2000 g 4, 200 g 4	5000 g 4, 200 g 4
	Weights	#11123109	#11123110	#11123111

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

¹⁾ In the temperature range 10...30 °C

		XP8001S	XP10001S
Limit values			
Maximum capacity		8.1 kg	10.1 kg
Readability		100 mg	100 mg
Tare range (from...to)		0 ... 8.1 kg	0 ... 10.1 kg
Repeatability (at nominal load)	sd	80 mg	80 mg
Linearity deviation		100 mg	100 mg
Eccentricity deviation (test load)		200 mg (5 kg)	200 mg (5 kg)
Sensitivity offset (test weight)		600 mg (8 kg)	500 mg (10 kg)
Sensitivity temperature drift ¹⁾		0.0015%/°C	0.0015%/°C
Sensitivity stability		0.005%/a	0.005%/a
Typical values			
Repeatability	sd	40 mg	40 mg
Linearity deviation		34 mg	34 mg
Eccentric deviation (test load)		30 mg (5 kg)	30 mg (5 kg)
Sensitivity offset (test load)		320 mg (8 kg)	300 mg (10 kg)
Minimum sample weight (according to USP)		120 g	120 g
Minimum sample weight (U=1%, k=2)		8 g	8 g

		XP6002MDR	XP12002MDR	XP8001M
Minimum sample weight (U=1%, k=2), fine range		1.2 g	1.2 g	–
Settling time		1.5 s	1.8 s	1.2 s
Dimensions				
Balance dimensions (WxDxH)		240x419x110 mm	240x419x110 mm	240x419x110 mm
Weighing pan dimensions		237x237 mm (WxD)	237x237 mm (WxD)	237x237 mm (WxD)
Typical uncertainties and supplementary data				
Repeatability	sd	40mg+0.00015%·Rgr	40mg+0.00008%·Rgr	40mg+0.00025%·Rgr
Repeatability, fine range	sd	6mg+0.00015%·Rgr	6mg+0.00008%·Rgr	–
Differential linearity deviation	sd	$\sqrt{(2ng \cdot Rnt)}$	$\sqrt{(1ng \cdot Rnt)}$	$\sqrt{(40ng \cdot Rnt)}$
Differential eccentric load deviation	sd	0.00025%·Rnt	0.0001%·Rnt	0.0003%·Rnt
Sensitivity offset	sd	0.0005%·Rnt	0.00025%·Rnt	0.002%·Rnt
Minimum sample weight (according to USP)		120g+0.45%·Rgr	120g+0.24%·Rgr	120g+0.75%·Rgr
Minimum sample weight (according to USP), fine range		18g+0.45%·Rgr	18g+0.24%·Rgr	–
Minimum sample weight (U=1%, k=2)		8g+0.03%·Rgr	8g+0.016%·Rgr	8g+0.05%·Rgr
Minimum sample weight (U=1%, k=2), fine range		1.2g+0.03%·Rgr	1.2g+0.016%·Rgr	–
Interface update rate		23 /s	23 /s	23 /s
Weight of balance		8.1 kg	8.1 kg	8.1 kg
Number of built-in reference weights		1	1	1
Weights for routine testing				
OIML Single Weights		200 g F2	500 g F2	200 g F2
	Small	#11118202	#11118203	#11118202
OIML Single Weights		5000 g F2	10000 g F2	5000 g F2
	Large	#11118206	#11118211	#11118206

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

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

		XP8001MDR	XP12001M	XP12000M*
Limit values				
Maximum capacity		8.1 kg	12.1 kg	12.1 kg
Readability		1000 mg	100 mg	1000 mg
Tare range (from...to)		0 ... 8.1 kg	0 ... 12.1 kg	0 ... 12.1 kg
Maximum capacity, fine range		1.6 kg	–	–
Readability, fine range		100 mg	–	–
Repeatability (at nominal load)	sd	600 mg	80 mg	600 mg
Repeatability, fine range (at nominal load)	sd	80 mg	–	–
Linearity deviation		600 mg	100 mg	600 mg
Eccentricity deviation (test load)		1000 mg (5 kg)	200 mg (5 kg)	1000 mg (5 kg)
Sensitivity offset (test weight)		600 mg (8 kg)	600 mg (12 kg)	600 mg (12 kg)
Sensitivity temperature drift ¹⁾		0.0015%/°C	0.0015%/°C	0.0015%/°C
Sensitivity stability		0.005%/a	0.005%/a	0.005%/a
Typical values				
Repeatability	sd	400 mg	40 mg	400 mg
Repeatability, fine range	sd	40 mg	–	–
Linearity deviation		36 mg	34 mg	34 mg
Eccentric deviation (test load)		30 mg (5 kg)	30 mg (5 kg)	30 mg (5 kg)
Sensitivity offset (test load)		320 mg (8 kg)	290 mg (12 kg)	290 mg (12 kg)
Minimum sample weight (according to USP)		1200 g	120 g	1200 g
Minimum sample weight (according to USP), fine range		120 g	–	–
Minimum sample weight (U=1%, k=2)		80 g	8 g	80 g

		XP8001MDR	XP12001M	XP12000M*
Minimum sample weight (U=1%, k=2), fine range		8 g	–	–
Settling time		1.2 s	1.2 s	1 s
Dimensions				
Balance dimensions (WxDxH)		240x419x110 mm	240x419x110 mm	240x419x110 mm
Weighing pan dimensions		237x237 mm (WxD)	237x237 mm (WxD)	237x237 mm (WxD)
Typical uncertainties and supplementary data				
Repeatability	sd	400mg+0.0012%·Rgr	40mg+0.00015%·Rgr	400mg+0.0008%·Rgr
Repeatability, fine range	sd	40mg+0.0012%·Rgr	–	–
Differential linearity deviation	sd	$\sqrt{(40\text{ng}\cdot\text{Rnt})}$	$\sqrt{(25\text{ng}\cdot\text{Rnt})}$	$\sqrt{(25\text{ng}\cdot\text{Rnt})}$
Differential eccentric load deviation	sd	0.0003%·Rnt	0.0003%·Rnt	0.0003%·Rnt
Sensitivity offset	sd	0.002%·Rnt	0.0012%·Rnt	0.0012%·Rnt
Minimum sample weight (according to USP)		1200g+3.6%·Rgr	120g+0.45%·Rgr	1200g+2.4%·Rgr
Minimum sample weight (according to USP), fine range		120g+3.6%·Rgr	–	–
Minimum sample weight (U=1%, k=2)		80g+0.24%·Rgr	8g+0.03%·Rgr	80g+0.16%·Rgr
Minimum sample weight (U=1%, k=2), fine range		8g+0.24%·Rgr	–	–
Interface update rate		23 /s	23 /s	23 /s
Weight of balance		8.1 kg	8.1 kg	8.1 kg
Number of built-in reference weights		1	1	1
Weights for routine testing				
OIML Single Weights		200 g F2	500 g F2	500 g F2
	Small	#11118202	#11118203	#11118203
OIML Single Weights		5000 g F2	10000 g F2	10000 g F2
	Large	#11118206	#11118211	#11118211

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

¹⁾ In the temperature range 10...30 °C

		XP16001M	XP16001MDR	XP20001M
Limit values				
Maximum capacity		16.1 kg	16.1 kg	20.1 kg
Readability		100 mg	1000 mg	100 mg
Tare range (from...to)		0 ... 16.1 kg	0 ... 16.1 kg	0 ... 20.1 kg
Maximum capacity, fine range		–	3.2 kg	–
Readability, fine range		–	100 mg	–
Repeatability (at nominal load)	sd	80 mg	600 mg	80 mg
Repeatability, fine range (at nominal load)	sd	–	80 mg	–
Linearity deviation		200 mg	600 mg	200 mg
Eccentricity deviation (test load)		200 mg (5 kg)	1000 mg (5 kg)	200 mg (10 kg)
Sensitivity offset (test weight)		800 mg (16 kg)	800 mg (16 kg)	800 mg (20 kg)
Sensitivity temperature drift ¹⁾		0.0015%/°C	0.0015%/°C	0.0015%/°C
Sensitivity stability		0.005%/a	0.005%/a	0.005%/a
Typical values				
Repeatability	sd	40 mg	400 mg	40 mg
Repeatability, fine range	sd	–	40 mg	–
Linearity deviation		130 mg	130 mg	130 mg
Eccentric deviation (test load)		120 mg (5 kg)	30 mg (5 kg)	120 mg (10 kg)
Sensitivity offset (test load)		260 mg (16 kg)	260 mg (16 kg)	240 mg (20 kg)
Minimum sample weight (according to USP)		120 g	1200 g	120 g
Minimum sample weight (according to USP), fine range		–	120 g	–
Minimum sample weight (U=1%, k=2)		8 g	80 g	8 g

		XP16001M	XP16001MDR	XP20001M
Minimum sample weight (U=1%, k=2), fine range		–	8 h	–
Settling time		1.2 s	1 s	1.2 s
Dimensions				
Balance dimensions (WxDxH)		240x419x110 mm	240x419x110 mm	240x419x110 mm
Weighing pan dimensions		237x237 mm (WxD)	237x237 mm (WxD)	237x237 mm (WxD)
Typical uncertainties and supplementary data				
Repeatability	sd	40mg+0.00012%·Rgr	400mg+0.0006%·Rgr	40mg+0.0001%·Rgr
Repeatability, fine range	sd	–	40mg+0.0006%·Rgr	–
Differential linearity deviation	sd	$\sqrt{(250\text{ng} \cdot \text{Rnt})}$	$\sqrt{(250\text{ng} \cdot \text{Rnt})}$	$\sqrt{(200\text{ng} \cdot \text{Rnt})}$
Differential eccentric load deviation	sd	0.0012%·Rnt	0.0003%·Rnt	0.0006%·Rnt
Sensitivity offset	sd	0.0008%·Rnt	0.0008%·Rnt	0.0006%·Rnt
Minimum sample weight (according to USP)		120g+0.36%·Rgr	1200g+1.8%·Rgr	120g+0.3%·Rgr
Minimum sample weight (according to USP), fine range		–	120g+1.8%·Rgr	–
Minimum sample weight (U=1%, k=2)		8g+0.024%·Rgr	80g+0.12%·Rgr	8g+0.02%·Rgr
Minimum sample weight (U=1%, k=2), fine range		–	8g+0.12%·Rgr	–
Interface update rate		23 /s	23 /s	23 /s
Weight of balance		9.5 kg	9.5 kg	9.5 kg
Number of built-in reference weights		2	1	2
Weights for routine testing				
OIML Single Weights		500 g F2	500 g F2	1000 g F2
	Small	#11118203	#11118203	#11118204
OIML Single Weights		10000 g F2	10000 g F2	20000 g F2
	Large	#11118211	#11118211	#11118212

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

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

		XP20000M*
Limit values		
Maximum capacity		20.1 kg
Readability		1000 mg
Tare range (from...to)		0 ... 20.1 kg
Repeatability (at nominal load)	sd	600 mg
Linearity deviation		600 mg
Eccentricity deviation (test load)		1000 mg (10 kg)
Sensitivity offset (test weight)		800 mg (20 kg)
Sensitivity temperature drift ¹⁾		0.001 %/°C
Sensitivity stability		0.005%/a
Typical values		
Repeatability	sd	400 mg
Linearity deviation		400 mg
Eccentric deviation (test load)		600 mg (10 kg)
Sensitivity offset (test load)		240 mg (20 kg)
Minimum sample weight (according to USP)		1200 g
Minimum sample weight (U=1%, k=2)		80 g
Settling time		1 s
Dimensions		
Balance dimensions (WxDxH)		240x419x110 mm
Weighing pan dimensions		237x237 mm (WxD)
Typical uncertainties and supplementary data		
Repeatability	sd	400mg+0.0005%·Rgr
Differential linearity deviation	sd	$\sqrt{(2\mu\text{g} \cdot \text{Rnt})}$

		XP2000M*
Differential eccentric load deviation	sd	0.003%·Rnt
Sensitivity offset	sd	0.0006%·Rnt
Minimum sample weight (according to USP)		1200g+1.5%·Rgr
Minimum sample weight (U=1%, k=2)		80g+0.1%·Rgr
Interface update rate		23 /s
Weight of balance		9.5 kg
Number of built-in reference weights		2
Weights for routine testing		
OIML Single Weights		1000 g F2
	Small	#11118204
OIML Single Weights		20000 g F2
	Large	#11118212

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

¹⁾ In the temperature range 10...30 °C

* No certified models available

The precision balances with "M" platform are no longer available.

7.4.6 Balances with Readability of 0.1 g / 1 g, "L" Platform

		XP8001L	XP16001L	XP16000L
Limit values				
Maximum capacity		8.1 kg	16.1 kg	16.1 kg
Readability		100 mg	100 mg	1000 mg
Tare range (from...to)		0 ... 8.1 kg	0 ... 16.1 kg	0 ... 16.1 kg
Repeatability (at nominal load)	sd	80 mg	80 mg	600 mg
Linearity deviation		200 mg	200 mg	600 mg
Eccentricity deviation (test load)		300 mg (5 kg)	300 mg (5 kg)	1000 mg (5 kg)
Sensitivity offset (test weight)		640 mg (8 kg)	800 mg (16 kg)	1280 mg (16 kg)
Sensitivity temperature drift ¹⁾		0.0015%/°C	0.0015%/°C	0.0015%/°C
Sensitivity stability		0.005%/a	0.005%/a	0.005%/a
Typical values				
Repeatability	sd	40 mg	40 mg	400 mg
Linearity deviation		130 mg	130 mg	400 mg
Eccentric deviation (test load)		200 mg (5 kg)	200 mg (5 kg)	600 mg (5 kg)
Sensitivity offset (test load)		190 mg (8 kg)	260 mg (16 kg)	380 mg (16 kg)
Minimum sample weight (according to USP)		120 g	120 g	1200 g
Minimum sample weight (U=1%, k=2)		8 g	8 g	80 g
Settling time		1.5 s	1.5 s	1.2 s
Dimensions				
Balance dimensions (WxDxH)		360x425x130 mm	360x425x130 mm	360x425x130 mm
Weighing pan dimensions		360x280 mm (WxD)	360x280 mm (WxD)	360x280 mm (WxD)
Typical uncertainties and supplementary data				
Repeatability	sd	40mg+0.00025%·Rgr	40mg+0.00012%·Rgr	400mg+0.0006%·Rgr
Differential linearity deviation	sd	$\sqrt{(500ng \cdot Rnt)}$	$\sqrt{(250ng \cdot Rnt)}$	$\sqrt{(2.5ug \cdot Rnt)}$
Differential eccentric load deviation	sd	0.002%·Rnt	0.002%·Rnt	0.006%·Rnt
Sensitivity offset	sd	0.0012%·Rnt	0.0008%·Rnt	0.0012%·Rnt
Minimum sample weight (according to USP)		120g+0.75%·Rgr	120g+0.36%·Rgr	1200g+1.8%·Rgr
Minimum sample weight (U=1%, k=2)		8g+0.05%·Rgr	8g+0.024%·Rgr	80g+0.12%·Rgr
Interface update rate		23 /s	23 /s	23 /s
Weight of balance		12.4 kg	12.4 kg	12.4 kg
Number of built-in reference weights		2	2	2

	XP8001L	XP16001L	XP16000L
Weights for routine testing			
OIML Single Weights	200 g F2	500 g F2	500 g F2
Small	#11118202	#11118203	#11118203
OIML Single Weights	5000 g F2	10000 g F2	10000 g F2
Large	#11118206	#11118211	#11118211

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

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

	XP32001L	XP32001LDR	XP32000L
Limit values			
Maximum capacity	32.1 kg	32.1 kg	32.1 kg
Readability	100 mg	1000 mg	1 g
Tare range (from...to)	0 ... 32.1 kg	0 ... 32.1 kg	0 ... 32.1 kg
Maximum capacity, fine range	–	6.4 kg	–
Readability, fine range	–	100 mg	–
Repeatability (at nominal load)	sd 80 mg	600 mg	0.6 g
Repeatability, fine range (at nominal load)	sd –	100 mg	–
Linearity deviation	300 mg	300 mg	0.6 g
Eccentricity deviation (test load)	300 mg (10 kg)	1000 mg (10 kg)	1 g (10 kg)
Sensitivity offset (test weight)	960 mg (32 kg)	960 mg (32 kg)	1.92 g (32 kg)
Sensitivity temperature drift ¹⁾	0.001%/°C	0.001%/°C	0.0015%/°C
Sensitivity stability	0.003%/a	0.003%/a	0.005%/a
Typical values			
Repeatability	sd 40 mg	400 mg	0.4 g
Repeatability, fine range	sd –	40 mg	–
Linearity deviation	200 mg	200 mg	0.4 g
Eccentric deviation (test load)	200 mg (10 kg)	600 mg (10 kg)	0.6 g (10 kg)
Sensitivity offset (test load)	320 mg (32 kg)	320 mg (32 kg)	0.65 g (32 kg)
Minimum sample weight (according to USP)	120 g	1200 g	1200 g
Minimum sample weight (according to USP), fine range	–	120 g	–
Minimum sample weight (U=1%, k=2)	8 g	80 g	80 g
Minimum sample weight (U=1%, k=2), fine range	–	8 g	–
Settling time	1.5 s	1.5 s	1.2 s
Dimensions			
Balance dimensions (WxDxH)	360x425x130 mm	360x425x130 mm	360x425x130 mm
Weighing pan dimensions	360x280 mm (WxD)	360x280 mm (WxD)	360x280 mm (WxD)
Typical uncertainties and supplementary data			
Repeatability	sd 40mg+0.00006%·Rgr	400mg+0.0003%·Rgr	0.4g+0.0003%·Rgr
Repeatability, fine range	sd –	40mg+0.0003%·Rgr	–
Differential linearity deviation	sd $\sqrt{(300ng \cdot Rnt)}$	$\sqrt{(300ng \cdot Rnt)}$	$\sqrt{(1.2ug \cdot Rnt)}$
Differential eccentric load deviation	sd 0.001%·Rnt	0.003%·Rnt	0.003%·Rnt
Sensitivity offset	sd 0.0005%·Rnt	0.0005%·Rnt	0.001%·Rnt
Minimum sample weight (according to USP)	120g+0.18%·Rgr	1200g+0.9%·Rgr	1200g+0.9%·Rgr
Minimum sample weight (according to USP), fine range	–	120g+0.9%·Rgr	–
Minimum sample weight (U=1%, k=2)	8g+0.012%·Rgr	80g+0.06%·Rgr	80g+0.06%·Rgr
Minimum sample weight (U=1%, k=2), fine range	–	8g+0.06%·Rgr	–
Interface update rate	23 /s	23 /s	23 /s
Weight of balance	12.4 kg	12.4 kg	12.4 kg
Number of built-in reference weights	2	2	2
Weights for routine testing			

	XP32001L	XP32001LDR	XP32000L
OIML Single Weights	1000 g F2	1000 g F2	1000 g F2
Small	#11118204	#11118204	#11118204
OIML Single Weights	20000 g F2	20000 g F2	20000 g F2
Large	#11118212	#11118212	#11118212

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

a = Year (annum)

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

	XP64001L	XP64000L
Limit values		
Maximum capacity	64.1 kg	64.1 kg
Readability	100 mg	1 g
Tare range (from...to)	0 ... 64.1 kg	0 ... 64.1 kg
Repeatability (at nominal load)	sd 100 mg	0.6 g
Linearity deviation	500 mg	0.6 g
Eccentricity deviation (test load)	500 mg (20 kg)	1 g (20 kg)
Sensitivity offset (test weight)	1280 mg (64 kg)	1.92 g (64 kg)
Sensitivity temperature drift ¹⁾	0.001%/°C	0.0015%/°C
Sensitivity stability	0.005%/a	0.003%/a
Typical values		
Repeatability	sd 40 mg	0.4 g
Linearity deviation	320 mg	0.4 g
Eccentric deviation (test load)	320 mg (20 kg)	0.6 g (20 kg)
Sensitivity offset (test load)	380 mg (64 kg)	0.65 g (64 kg)
Minimum sample weight (according to USP)	120 g	1200 g
Minimum sample weight (U=1%, k=2)	8 g	80 g
Settling time	1.8 s	1.5 s
Dimensions		
Balance dimensions (WxDxH)	362x426x131 mm	362x426x131 mm
Weighing pan dimensions	362x282 mm (WxD)	362x282 mm (WxD)
Typical uncertainties and supplementary data		
Repeatability	sd 40mg+0.00006%·Rgr	0.4g+0.0003%·Rgr
Differential linearity deviation	sd $\sqrt{(400ng \cdot Rnt)}$	$\sqrt{(600ng \cdot Rnt)}$
Differential eccentric load deviation	sd 0.0008%·Rnt	0.0015%·Rnt
Sensitivity offset	sd 0.0003%·Rnt	0.0005%·Rnt
Minimum sample weight (according to USP)	120g+0.18%·Rgr	1200g+0.9%·Rgr
Minimum sample weight (U=1%, k=2)	8g+0.012%·Rgr	80g+0.06%·Rgr
Interface update rate	23 /s	23 /s
Weight of balance	14.1 kg	14.1 kg
Number of built-in reference weights	2	2
Weights for routine testing		
OIML Single Weights	2000 g F2	2000 g F2
Small	#11118205	#11118205
OIML Single Weights	50000 g F2	50000 g F2
Large	#11116659	#11116659

sd = Standard deviation

Rnt = Net weight (sample weight)

Rgr = Gross weight

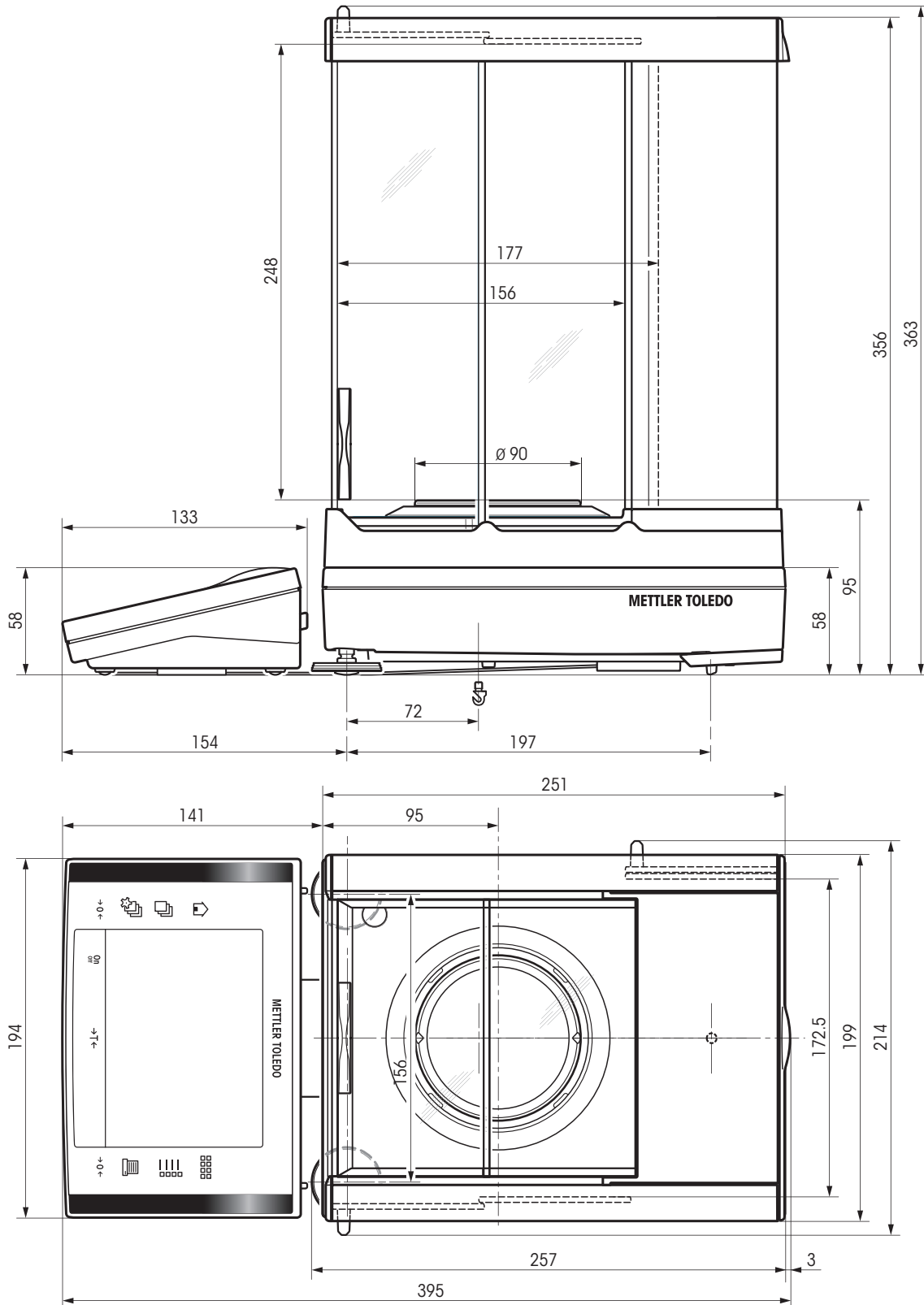
a = Year (annum)

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

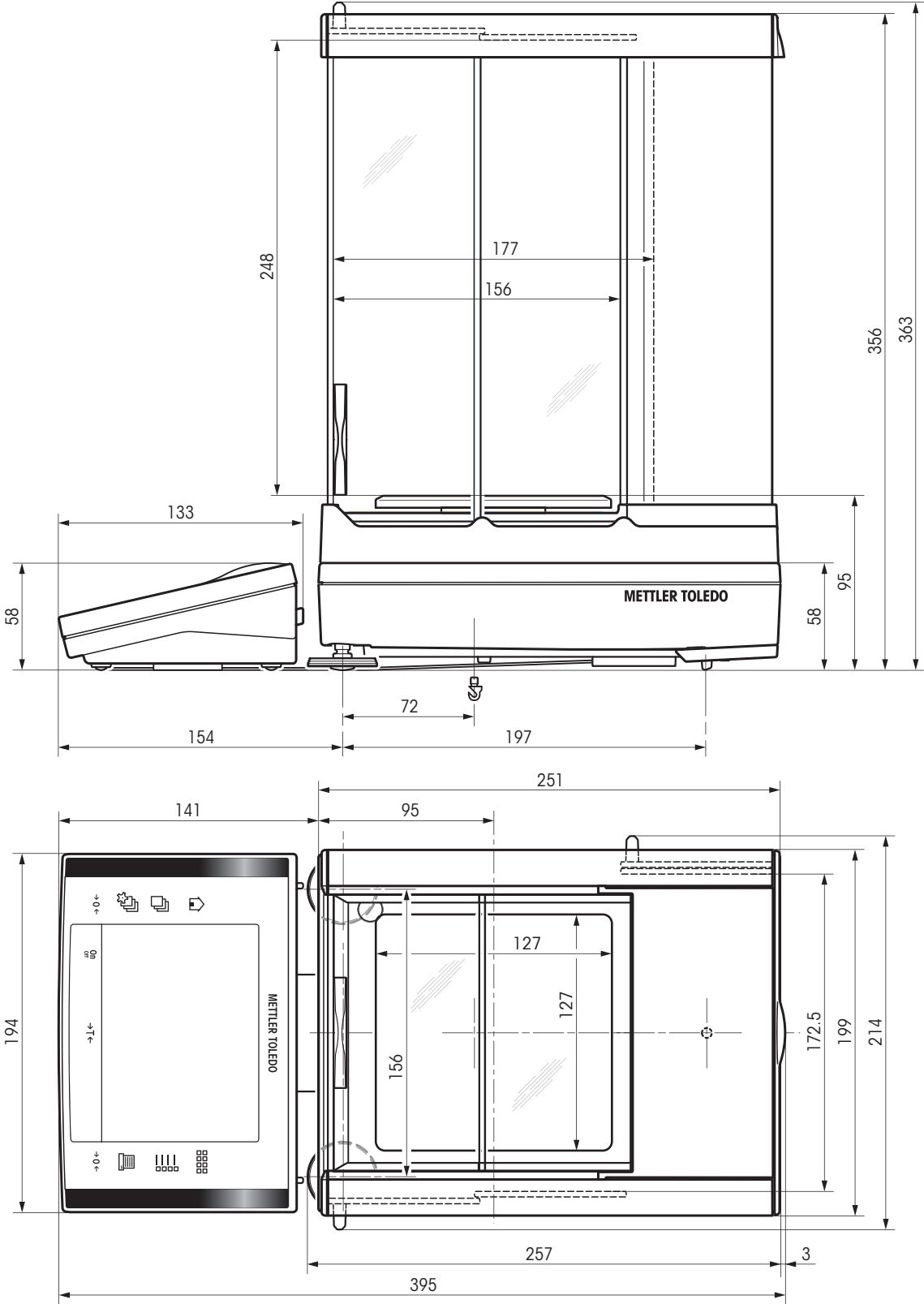
7.5 Dimensions

Dimensions in mm.

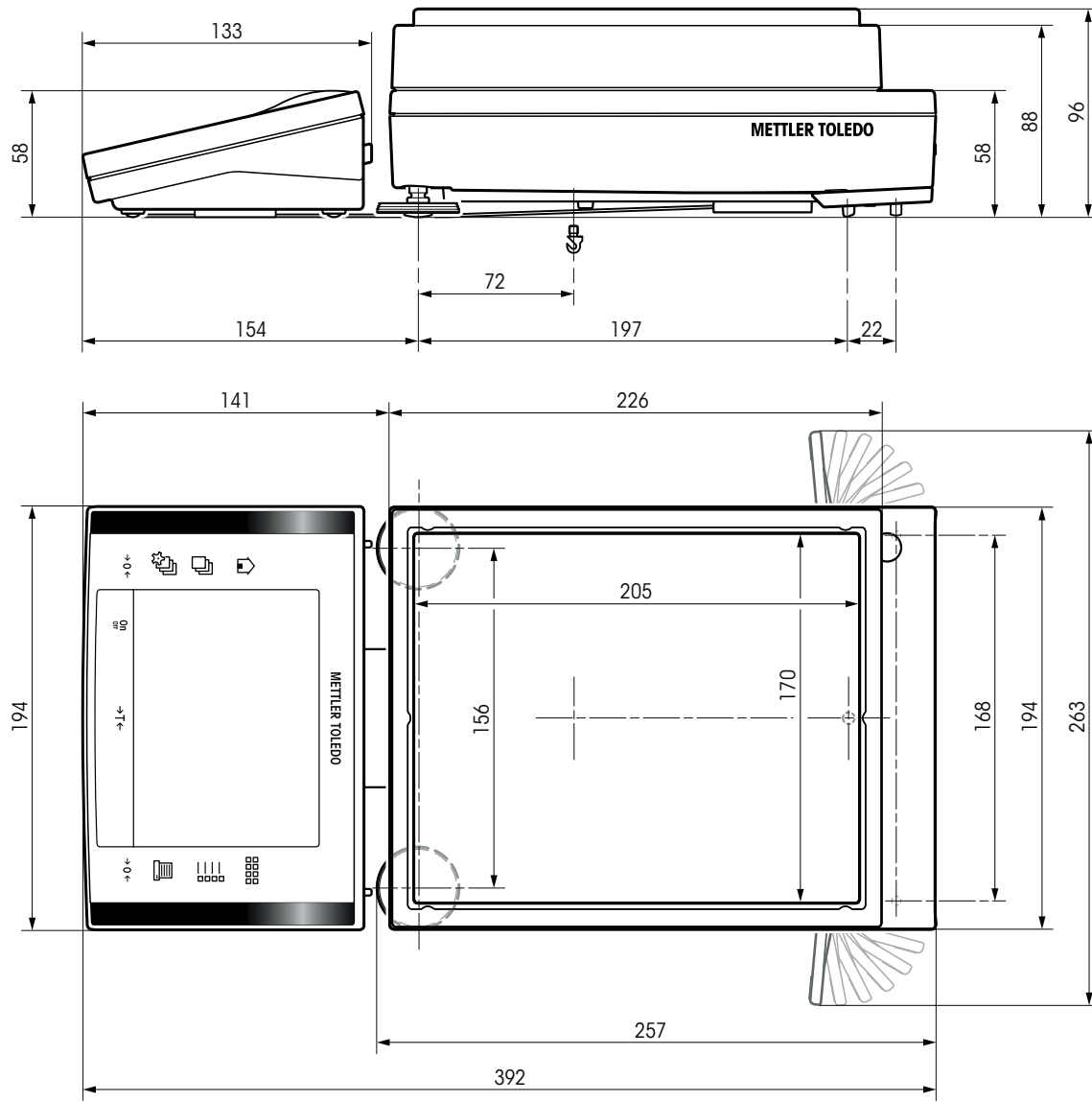
7.5.1 Balances with Readability of 0.1 mg, "S" Platform with Draft Shield



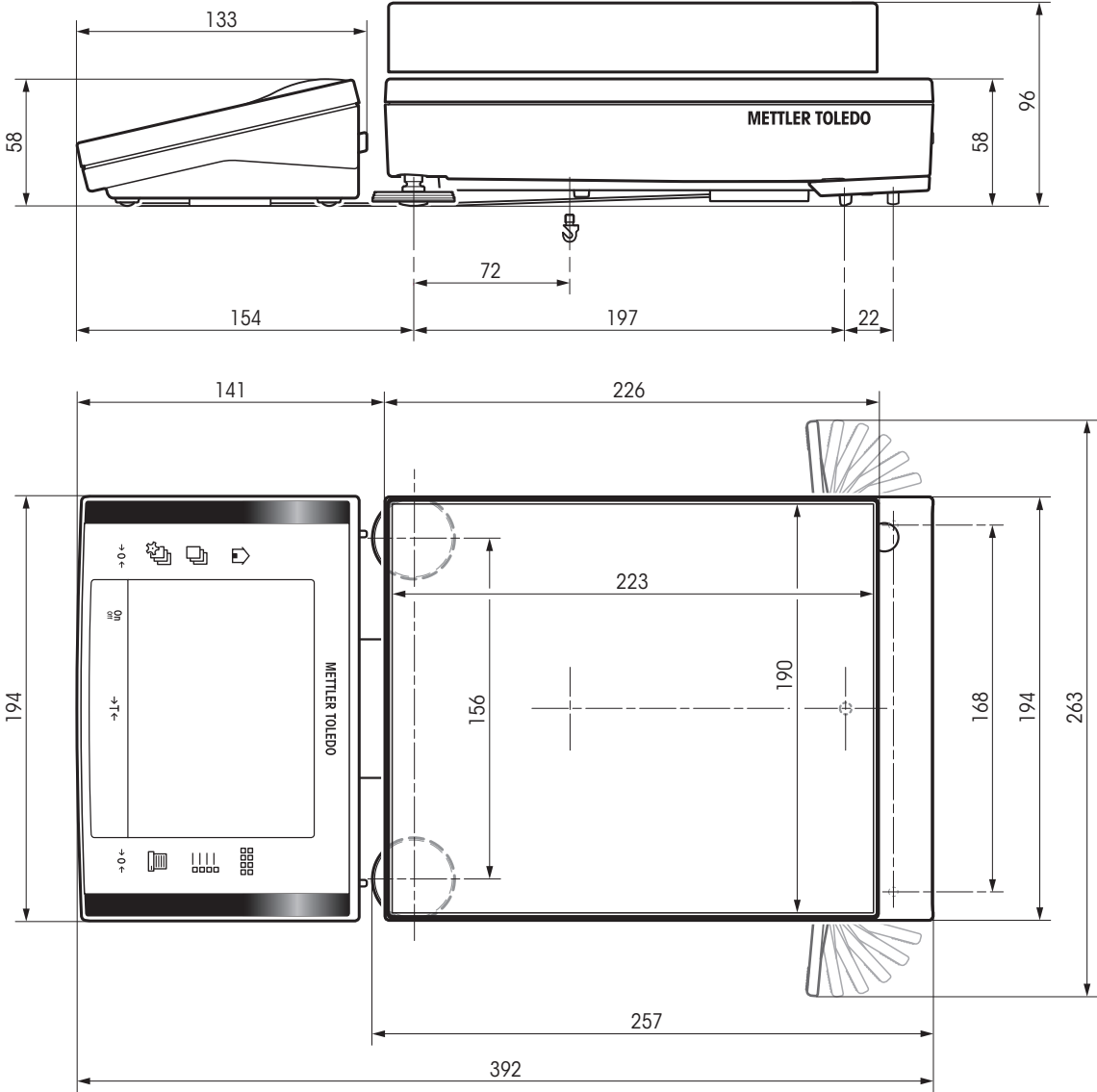
7.5.2 Balances with Readability of 1 mg, "S" Platform with Draft Shield



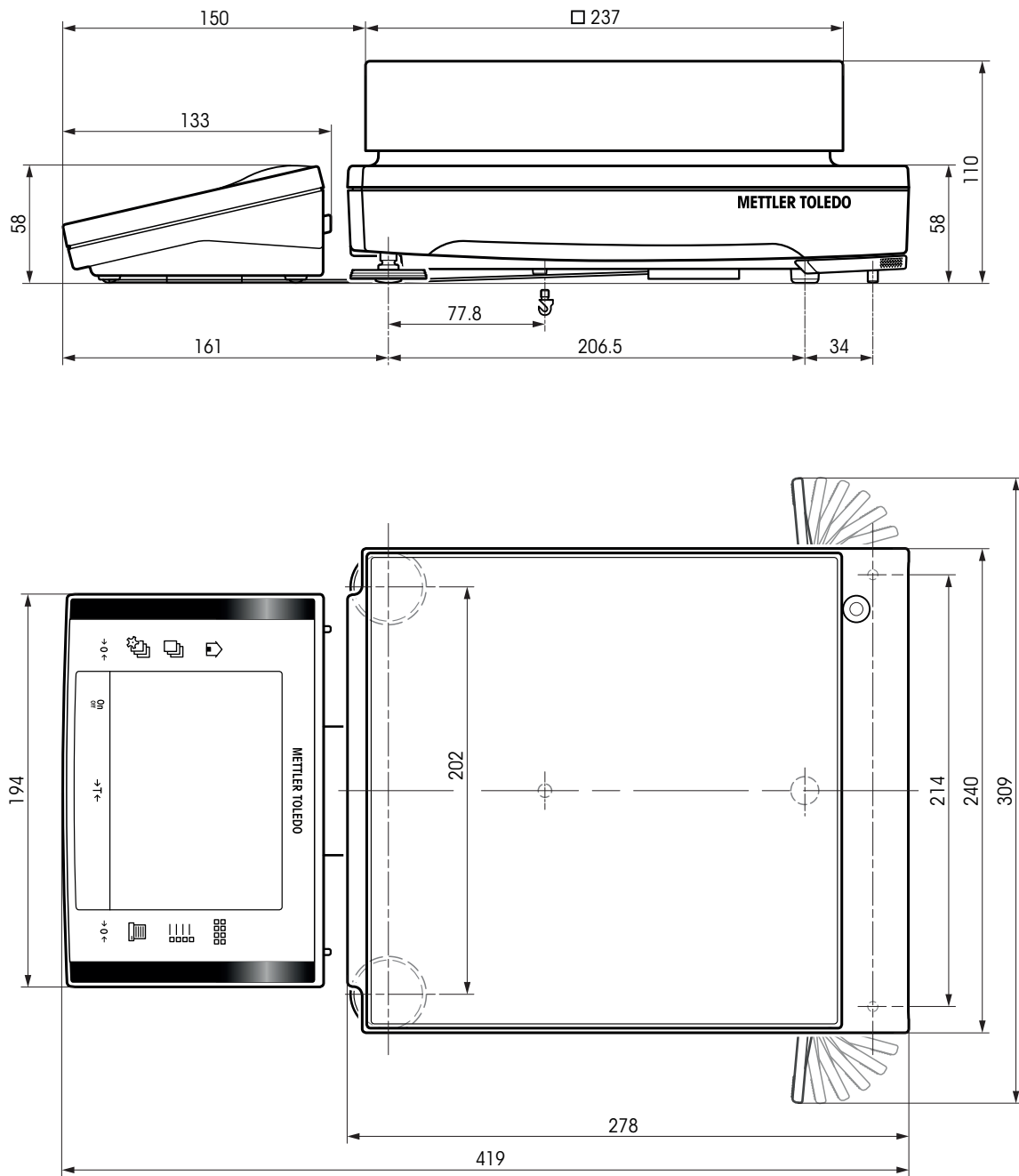
7.5.3 Balances with Readability of 10 mg, "S" Platform with Draft Shield Element

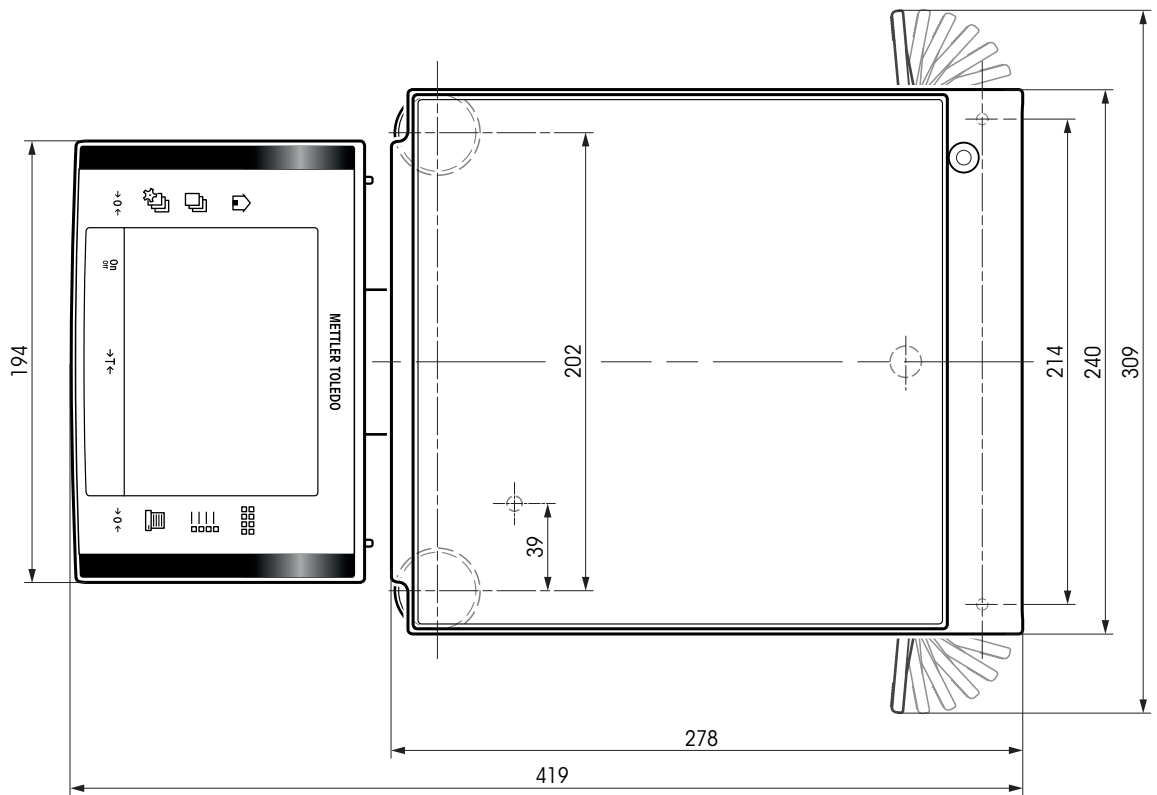
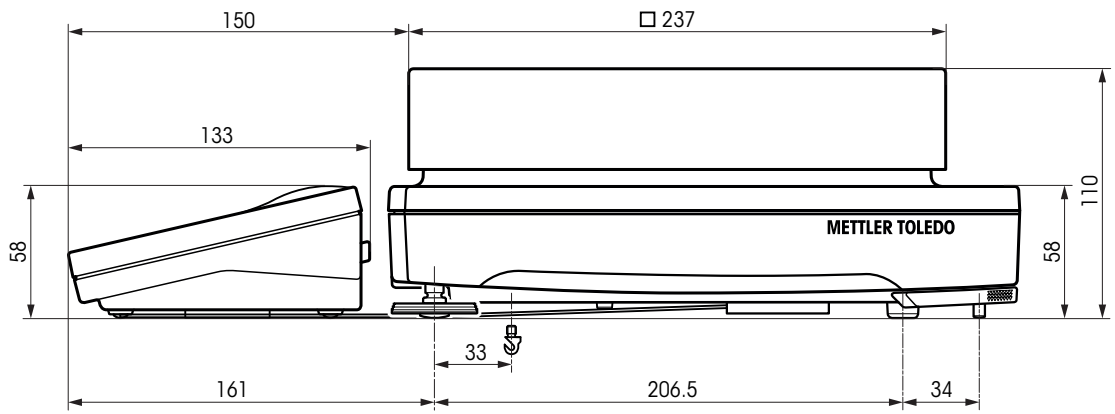


7.5.4 Balances with Readability of 0.1 g, "S" Platform



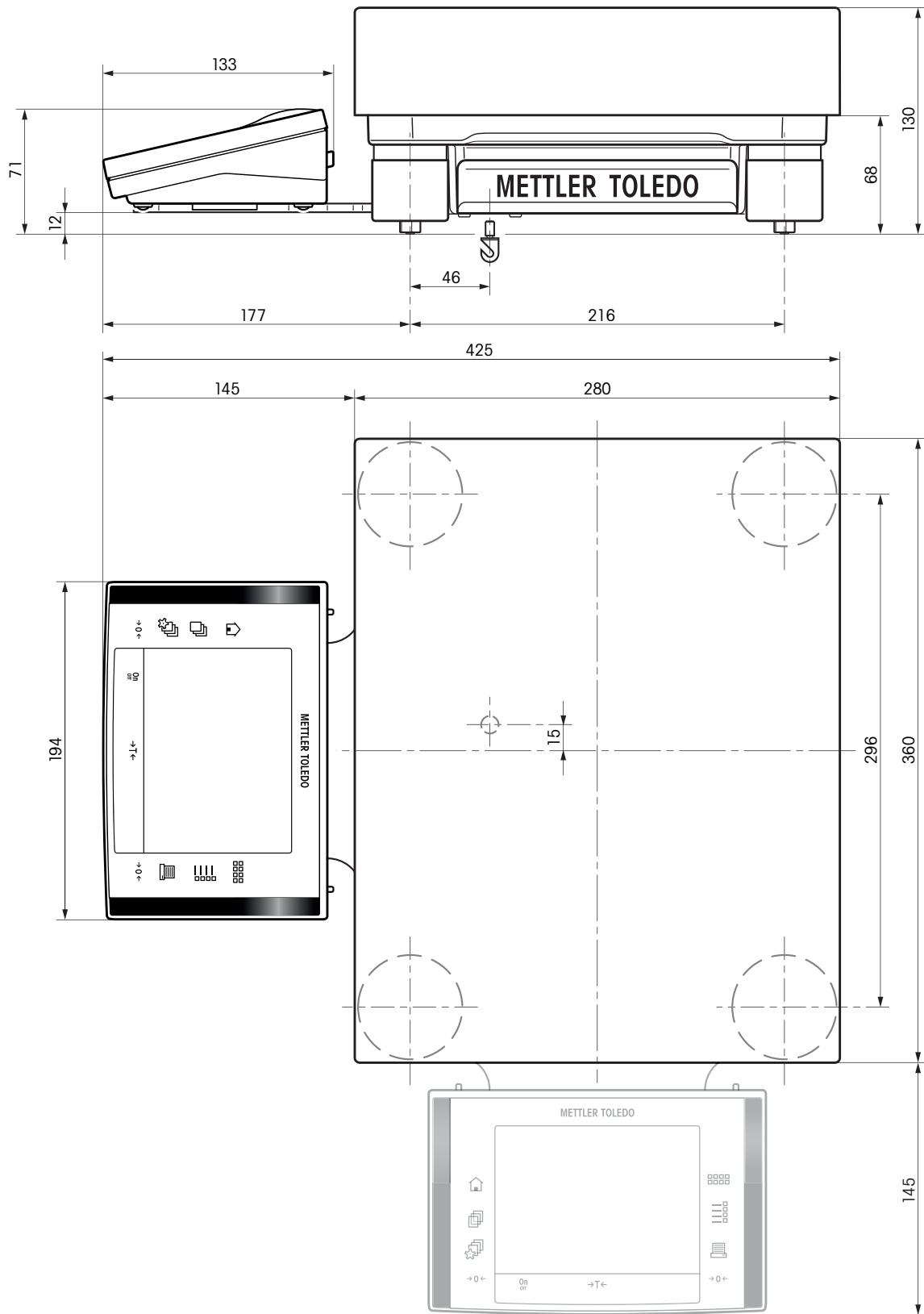
7.5.5 Balances with Readability of 10 mg / 0.1 g / 1 g, "M" Platform





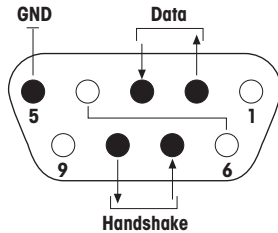
Models: XP16001M, XP16001MDR, XP20001M, XP20000M

7.5.6 Balances with Readability of 0.1 g / 1 g, "L" Platform



7.6 Interfaces

7.6.1 Specifications of RS232C

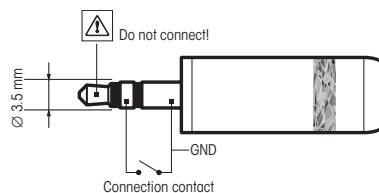
Interface type:	Voltage interface according to EIA RS-232C/DIN 66020 (CCITT V24/V.28)	
Max. cable length:	15 m	
Signal level:	Outputs: +5 V ... +15 V (RL = 3 – 7 kΩ) –5 V ... –15 V (RL = 3 – 7 kΩ)	Inputs: +3 V ... 25 V –3 V ... 25 V
Connector:	Sub-D, 9-pole, female	
Operating mode:	Full duplex	
Transmission mode:	Bit-serial, asynchronous	
Transmission code:	ASCII	
Baud rates:	600, 1200, 2400, 4800, 9600, 19200, 384001) (firmware selectable)	
Bits/parity:	7-bit/even, 7-bit/odd, 7-bit/none, 8-bit/none (firmware selectable)	
Stop bits:	1 stop bit	
Handshake:	None, XON/XOFF, RTS/CTS (firmware selectable)	
End-of-line:	<CR><LF>, <CR>, <LF> (firmware selectable)	
	Pin 2: Balance transmit line (TxD) Pin 3: Balance receive line (RxD) Pin 5: Ground signal (GND) Pin 7: Clear to send (hardware handshake) (CTS) Pin 8: Request to send (hardware handshake) (RTS)	

7.6.2 Specifications of "Aux" Connection

You can connect the METTLER TOLEDO "ErgoSens" or an external switch to sockets "Aux 1" and "Aux 2". This allows you to start functions such as taring, zeroing, printing and others.

External connection

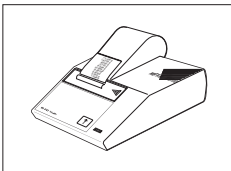
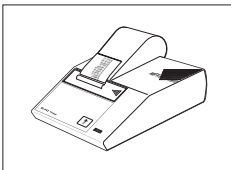
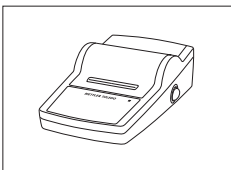
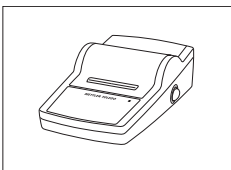
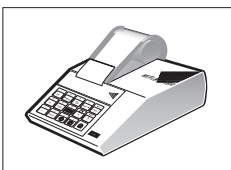
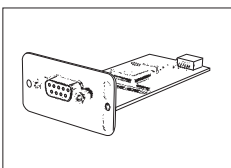
Connector:	3.5 mm stereo jack connector	
Electrical data:	Max. voltage	12 V
	Max. current	150 mA



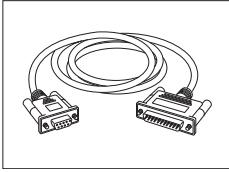
8 Accessories and Spare Parts

8.1 Accessories

You can increase the functionality of your balance with accessories from the METTLER TOLEDO range. The following options are available:

	Description	Part No.
Printers		
	BT-P42 printer with Bluetooth connection to instrument	11132540
	Paper roll, set of 5 pcs	00072456
	Paper roll, self-adhesive, set of 3 pcs	11600388
	Ribbon cartridge, black, set of 2 pcs	00065975
	RS-P42 printer with RS232C connection to instrument	00229265
	Paper roll, set of 5 pcs	00072456
	Paper roll, self-adhesive, set of 3 pcs	11600388
	Ribbon cartridge, black, set of 2 pcs	00065975
	RS-P25 printer with RS232C connection to instrument	11124300
	Paper roll, set of 5 pcs	00072456
	Paper roll, self-adhesive, set of 3 pcs	11600388
	Ribbon cartridge, black, set of 2 pcs	00065975
	RS-P26 printer with RS232C connection to instrument (with date and time)	11124303
	Paper roll, set of 5 pcs	00072456
	Paper roll, self-adhesive, set of 3 pcs	11600388
	Ribbon cartridge, black, set of 2 pcs	00065975
	LC-P45 application printer with additional functions	00229119
	Paper roll, set of 5 pcs	00072456
	Paper roll, self-adhesive, set of 3 pcs	11600388
	Ribbon cartridge, black, set of 2 pcs	00065975
Optional interfaces		
	Second RS232C Interface	11132500

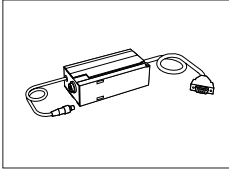
	Ethernet Interface for connection to an Ethernet network	11132515
	BT option: Bluetooth Interface for multipoint connection for up to 6 Bluetooth devices	11132530
	BTS option: Bluetooth Interface, single-point connection	11132535
	PS/2 option: Interface for connecting commercial keyboards and barcode readers	11132520
	LocalCAN option: Interface for connection of up to 5 LC (Local-CAN) instruments	11132505
	MiniMettler option: Interface MiniMettler, for connection to older (legacy) METTLER TOLEDO systems	11132510
	RS232 - USB converter cable – Cable with converter to connect a balance (RS232) to a USB port	64088427
Cables for RS232C interface		
	RS9 – RS9 (m/f): connection cable for PC, length = 1 m	11101051



RS9 – RS25 (m/f): connection cable for PC, length = 1 m

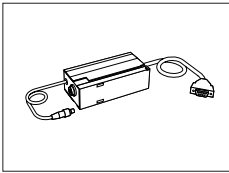
11101052

Cables for LocalCAN Interface



LC – RS9: Cable for connecting a PC with RS232C, 9-pin (f), length = 2 m

00229065



LC – RS25: Cable for connecting a printer or PC with RS232C, 25-pin (m/f), length = 2 m

00229050



LC – CL: Cable for connecting a device with METTLER TOLEDO CL interface (5-pin), length = 2 m

00229130



LC – LC2: Extension cable for LocalCAN, length = 2 m

00229115



LC – LC5: Extension cable for LocalCAN, length = 5 m

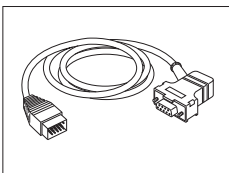
00229116



LC – LCT: Cable branch (T-connector) for LocalCAN

00229118

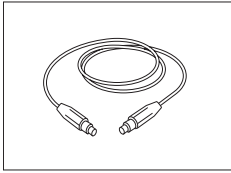
Cables for MiniMettler Interface



MM – RS9f: RS232C connection cable to MiniMettler interface, length = 1.5 m

00229029

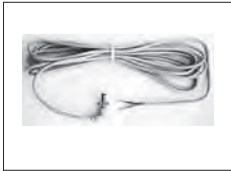
Cables for Terminal



Terminal extension cable, length = 4.5 m

11600517

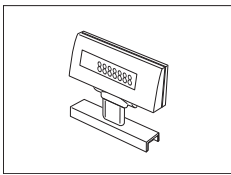
Cable, one-sided open (2-pin)



Cable between balance and AC adapter, length = 4 m

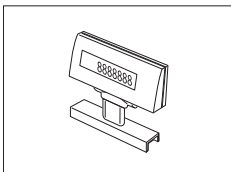
11132037

Auxiliary displays



BT-BLD Bluetooth auxiliary display for table mounting, 168 mm, LCD display with backlighting

11132555



LC/RS-BLD auxiliary display on bench stand, backlit (incl. RS cable and separate AC adapter)

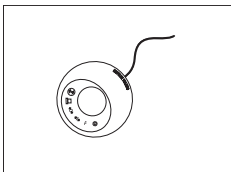
00224200



RS/LC-BLDS auxiliary display for table or balance mounting, 480 mm, LCD display with backlighting

11132630

Sensors



ErgoSens, optical sensor for hands-free operation

11132601

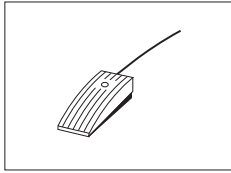
LC-Switchbox



For connection of up to 3 balances with LocalCAN interface to a printer

00229220

Footswitches



Footswitch with selectable function for balances (Aux 1, Aux 2)

11106741



LC-FS foot switch with selectable function for balances with LocalCAN interface

00229060

Filling-Process Control



LV11 automatic feeder for automatic loading of small items on the balance

21900608

Draft shield door for "Pro" Draft shield with opening for LV11

11132711

SQC14 filling process control

Compact instrument with printer for control of up to 16 articles

00236210

Compact instrument with printer for control of up to 60 articles

00236211

Universal AntiStatic Kit



Universal antistatic kit complete U-shaped, including electrode and power supply

11107767

Optional: Second U-electrode*

11107764

Optional: Point-electrode*

11107765

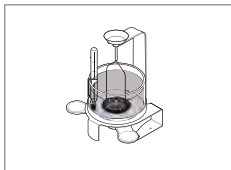
* Power supply for optional, second U-electrode

11107766

11107764, or for optional point-electrode

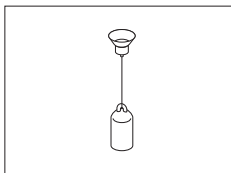
11107765

Density determination



Kit for density determination of solids and liquids (for 1 mg and 0.1 mg models)

11132680



Sinker for density of liquids in conjunction with Density Kit

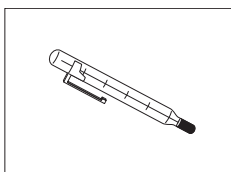
00210260

Calibrated (sinker + certificate)

00210672

Recalibrated (new certificate)

00210674



Calibrated thermometer with certificate

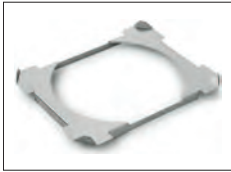
11132685

ErgoClips



ErgoClip Sieve-S for 0.1 g and 0.01 g models, "S" platform

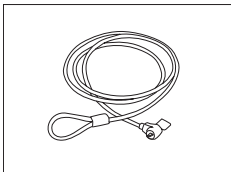
30039096



ErgoClip Sieve-L for "L" platform

30005760

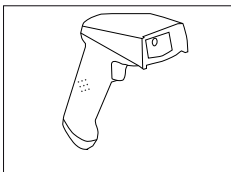
Anti-theft devices



Steel cable

11600361

Barcode Reader



RS232C Barcode Reader

21901297

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

RS232 F cable 21901305

Null modem adapter 21900924

Plus one of the following:

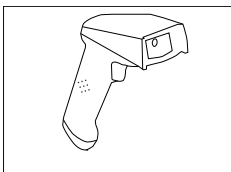
AC adapter 5 V for EU 21901370

AC adapter 5 V for US 21901372

AC adapter 5 V for GB 21901371

AC adapter 5 V for AU 21901370

+ 71209966



RS232C Barcode Reader – Cordless

21901299

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

Cradle 21901300

RS232 F cable 21901305

Null modem adapter 21900924

Plus one of the following:

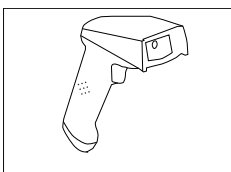
AC adapter 12 V for EU 21901373

AC adapter 12 V for US 21901375

AC adapter 12 V for GB 21901374

AC adapter 12 V for AU 21901373

+ 71209966

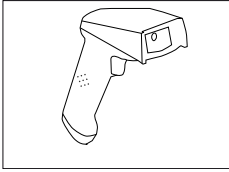


PS/2 Barcode Reader, without cable

21901297

PS/2 wedge single cable

21901307



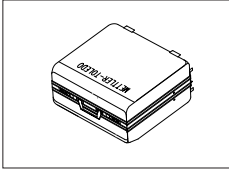
PS/2Y Barcode Reader, without cable

PS/2 wedge twin (Y) cable

21901297

21901308

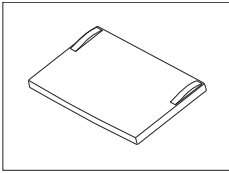
Transport Cases



Transport case for precision balances for 10 mg and 0.1 g models, "S" platform

11132595

Protective Covers



Protective cover for XP terminal

11132570



Protective cover for weighing platform for 10 mg / 0.1 g models, "S" platform

11133034



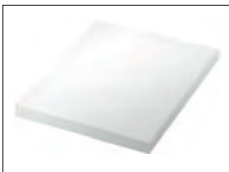
Protective cover for weighing platform, "M" platform

11132574



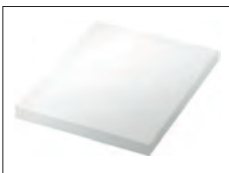
Protective cover for weighing pan with draft shield element for 10 mg models, "S" platform

30034950



Protective cover for weighing pan for 0.1 g models, "S" platform

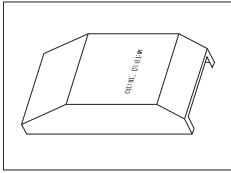
30034949



Protective cover for weighing pan, "L" platform

30034951

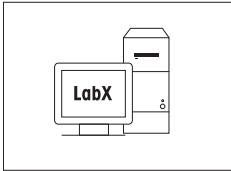
Dust covers



Dust cover for 0.1 g and 0.01 g models, "S" platform

30035839

Software



LabX Software for One Click™ Weighing Solutions

on request

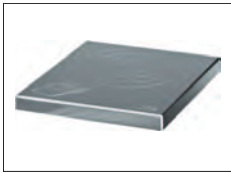
Enables you to perform One Click™ Standard Preparation, One Click™ Loss on Drying, One Click™ Sieve Analysis and many other applications.

Simply start the method with the One Click™ shortcut on the balance touchscreen. LabX guides you step-by-step through the SOP on the balance, performs your calculations automatically, and takes care of saving all your data. The complete solution can be tailored to match your process requirements. Visit www.mt.com/one-click-weighing for more information

Freeweigh.Net

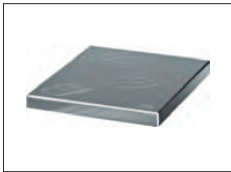
21900895

Weighing pans



MPS (Magnetic Protection Shield) weighing pan for 0.1 g models 190 x 223 mm, "S" platform

11132625



MPS (Magnetic Protection Shield) weighing pan for 10 mg models 170 x 205 mm, "S" platform

11132626



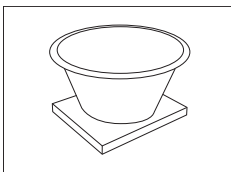
Weighing pan 190 x 223 mm, incl. pan support, "S" platform

11132655



Weighing pan 170 x 205 mm, incl. pan support and draft shield element, "S" platform

11132660



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

11132657

Draft shields



"Pro" Draft shield glass free for 0.1 mg and 1 mg models (food industry), usable height 248 mm, "S" platform

11131652



"MagicCube" Draft shield glass free for 0.1 mg and 1 mg models, usable height 175 mm, "S" platform

11131650



Simple Draft shield glass free for 0.1 g and 10 mg models, usable height 175 mm, "S" platform
For 0.1 g model the weighing pan set must be ordered additionally

11131653

11132660



Draft shield to cover the entire balance "XP-W12"
300 x 450 x 450 mm (W x D x H), "S" and "M" platform

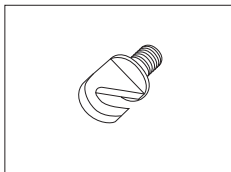
11134430



Draft shield to cover the entire balance "XP-W64"
550 x 470 x 580 mm (W x D x H), "M" and "L" platform

11134470

Weighing Below the Balance



Hook for the hanger (depending on the model), "M" and "L" platform

11132565

Various



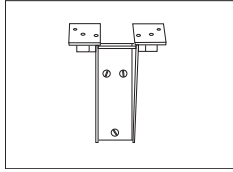
Terminal stand for placement of the terminal 30 cm above the weighing pan, "S" and "M" platform

11132636



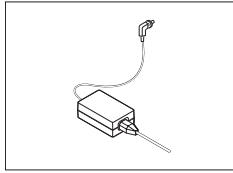
Terminal stand for placement of the terminal 30 cm above the weighing pan, "L" platform

11132653



Wall fixture for terminal

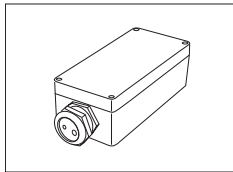
11132665



AC/DC adapter (without power cable) 100–240 VAC,
50/60 Hz, 0.3 A, 12 VDC 2.25 A

11107909

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



IP54 protective housing for AC adapter

11132550

8.2 Spare Parts

Various

	Pos	Description	Part No.
	Weighing pans, "S" platform		
	1	0.1 mg Weighing pan 90 mm	11133064
	2	1 mg Weighing pan 127 x 127 mm	11131022
	3	10 mg Weighing pan 170 x 205 mm	11131030
	3	0.1 g Weighing pan 190 x 223 mm	11131031
	4	10 mg Draft shield element	11131040
	Weighing pans, "M" platform		
	3	all Weighing pan 237 x 237 mm	11131173
	Weighing pans, "L" platform		
	3	≤ 32 kg Weighing pan 280 x 360 mm	00239105
3	64 kg Weighing pan 280 x 360 mm	11102124	
Various			
	5	≥ 10 mg Pan support, "S" and "M" platform	11131029
	5	Pan support, "L" platform	00239104
	6	Foot screw, "S" and "M" platform	11106323
		Holder for XP terminal, "S" platform	11131020
		Holder for XP terminal, "M" platform	11131184
		XP Terminal complete with firmware	11130690

Draft Shield, "S" platform (0.1 mg + 1 mg)

	Pos	Description	Part No.
	1	Door front left	11133080
	2	Door back left	11133079
	3	Door top front	11133082
	4	Door top back	11133081
	5	Door back right	11133077
	6	Door front right	11133078
	7	Draft shield element, 0.1 mg	11131531
	8	Ring seal, 0.1 mg	11131551

Packaging

	Pos	Description	Part No.
	"S" balances, Type XPxx4S		
		Packaging	11133052
		Export box	11132834
		Packaging Draft shield	11133054
		Export carton Draft shield	11132867
	"S" balances, Type XPxx3S		
		Packaging	11133048
		Export box	11132834
		Packaging Draft shield	11133054
		Export carton Draft shield	11132867
	"S" balances, Type XPxx2S		
		Packaging	11133046
		Export box	11132839
	"S" balances, Type XPxx1S		
		Packaging	11133047
		Export box	11132839
	"M" balances, Type XPxxxM		
		Packaging	11133055
		Export box	11132879
	"L" balances, Type XPxxxL		
	Packaging	11133057	
	Export box	11132912	

9 Appendix

9.1 MT-SICS Interface Commands and Functions

Many of the instruments and balances used have to be capable of integration in a complex computer or data acquisition system.

To enable you to integrate balances in your system in a simple manner and utilize their capabilities to the full, most balance functions are also available as appropriate commands via the data interface.

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

For further information please refer to the Reference Manual MT-SICS downloadable from the Internet under

► www.mt.com/xp-precision

9.2 Procedure for Certified Balances

Preface

Certified balances are subject to the national, legal requirements of "non-automatic balances".

Switching on the balance

- **Switching on**
 - Immediately after being switched on, the balance displays 0.000.. g.
 - The balance is always started up with the "Factory setting" unit.
- **Switch-on range**
 - At maximum 20% of the type load, otherwise overload is displayed (OIML R76 4.5.1).
- **Stored value as switch-on zero point**
 - It is not permissible to use a stored value as a switch-on zero point; the MT-SICS M35 command is not available (OIML R76 T.5.2).

Display

- **Display of the weight value**
 - The "e" certification value is always shown in the display and is specified at the model designation plate (OIML R76 T.3.2.3 and 7.1.4).
 - If the display increment is lower than the "e" certification value, this is variably displayed for the net, gross and weighed tare. (Graying of the digits or certification brackets) (OIML R76 T.2.5.4 and 3.4.1).
- In accordance with guidelines, the tested display increment (certification value) is never lower than 1 mg (OIML R76 T.3.4.2).
- At balances with $d = 0.1$ mg, the digits below 1 mg are displayed in gray. These digits in brackets are printed. In accordance with legal metrology requirements, this illustration does not affect the accuracy of the weighing results.
- **Units of measurement**
 - The display and info unit are firmly set to g or mg (depending on the model).
 - The following applies for the "Custom unit":
 - No certification brackets.
 - The following names are blocked, this applies to upper and lower case letters.
 - All official units (g, kg, ct etc.).
 - c, ca, car, cm, crt, cart, kt, gr, gra, gram, grm, k, kilo, to, ton.
 - All names with "o" which can be replaced by a zero (Oz, Ozt etc.).

- **Identification of the weight display**

- Gross, net, tare and other weight values are accordingly marked (OIML R76 4.6.5).
 - Net for net when a tare value has been used.
 - B or G for gross.
 - T for the weighed tare.
 - PT for the specified tare.
 - * or diff for the difference between the net or gross.

- **Info field**

- The info weight value is handled metrologically in the same way as the weight value in the main display.

Printout (OIML R76 4.6.11)

- If a tare value is entered manually (PreTare), the PreTare value is always printed along with the net value (PT 123.45 g).
- The printed weight values are identified in the same way as the weight value on the display. I.e. N, B or G, T, PT, diff or *, with differentiation.

Example:

Single-range balance.

N	123.4[5] g
PT	10.00 g → for PreTare
G	133.4[5] g

DR balance with 100.00 g fine range.

N	80.4[0] g
T	22.5[6] g → for weighed tare
G	102.9[] g

Balance functions

- **Reset to zero**

- The zero range is limited to a maximum of $\pm 2\%$ of the full load (OIML R76 4.5.1).

- **Tare**

- No negative tare values are permitted.
- Tare immediate (TI) is not permitted, the MT-SICS `TI` command is not available (OIML R76 4.6.4).

- **1/xd**

- **e = d**

The 1/xd switchover is not permitted (OIML R76 3.1.2).

- **e = 10d**

This is only permitted in the case of the 1/10d switchover.

- **e = 100d**

Only the 1/10d and 1/100d switchover are permitted.

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GWP® – Good Weighing Practice™

The global weighing guideline GWP® reduces risks associated with your weighing processes and helps to

- choose the appropriate balance
- reduce costs by optimizing testing procedures
- comply with the most common regulatory requirements

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