

METTLER TOLEDO



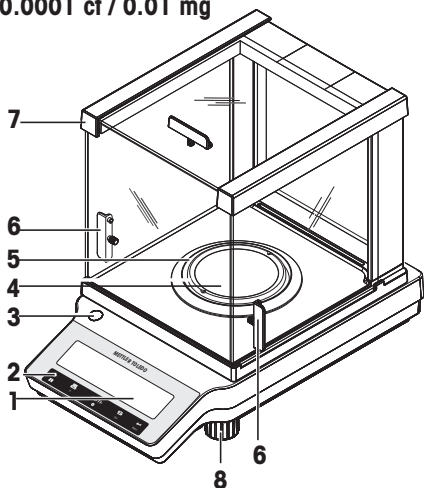
This User Manual is a brief instruction that provides information to handle with the first steps of the instrument in a safe and efficient manner. Personnel must have carefully read and understood this manual before performing any tasks.

For full information, always consult the Reference Manual (RM).

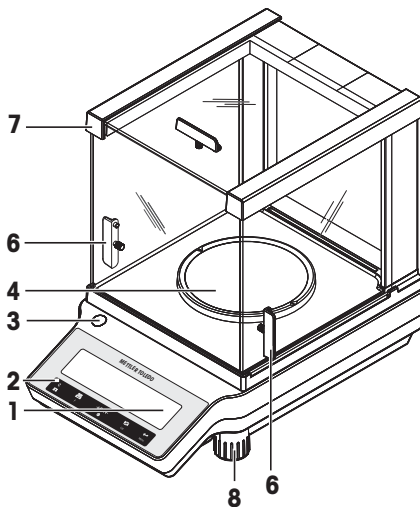
► www.mt.com/je-RM

Overview components

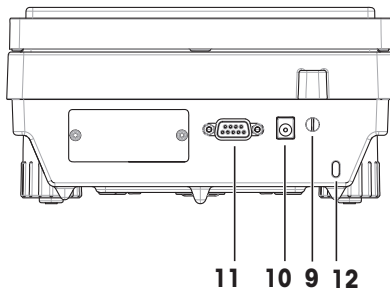
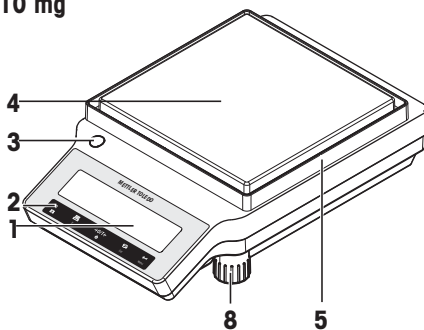
0.001 ct / 0.1 mg
0.0001 ct / 0.01 mg



1 mg

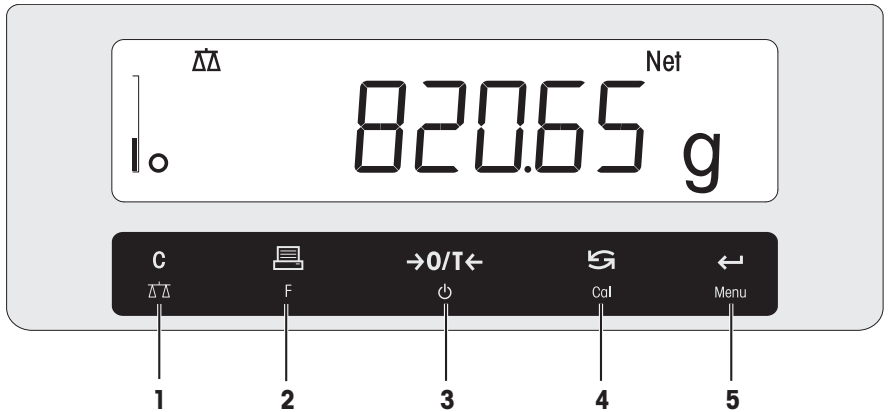


10 mg



1	Display	2	Operation keys
3	Level indicator	4	Weighing pan
5	Draft shield element	6	Handle for operation of the draft shield door
7	Glass draft shield	8	Leveling foot
9	Legal for trade (LFT) sealing	10	Socket for AC/DC adapter
11	RS232C serial interface	12	Kensington slot for anti-theft purposes

Overview operation keys



Legend key functions










No.	Key	Press briefly (less than 1.5 s) 	Press and hold (longer than 1.5 s) 
1	 	<ul style="list-style-type: none"> Cancel or leave menu without saving One step back in the menu 	<ul style="list-style-type: none"> Select the simple weighing application Exit application
2	 F	<ul style="list-style-type: none"> Print display value Transmit data To navigate backwards in the menu or menu selection Decrease parameters in menu or applications 	<ul style="list-style-type: none"> Open the application list for selecting an application
3	 	<ul style="list-style-type: none"> Zero/Tare Switch on 	<ul style="list-style-type: none"> Switch off into standby mode
4	 Cal	<ul style="list-style-type: none"> With entries, scroll down To navigate forward menu topics or menu selections To toggle between unit 1, recall value (if selected), unit 2 (if different from unit 1) and the application unit (if any) Increase parameters in menu or applications. 	<ul style="list-style-type: none"> Select adjustment (calibration) <ul style="list-style-type: none"> with internal weight * with external weight Customer fine adjustment * <p>* On models with internal weight only</p>
5	 Menu	<ul style="list-style-type: none"> Enter or leave menu selection To enter application parameter digit and switch to next parameter digit To accept parameter in menu selection. 	<ul style="list-style-type: none"> Enter or leave menu (parameter settings) To store parameter To accept numeric inputs in applications.

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1 Introduction

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

This document is based on the software version V 1.20.

EULA

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

▶ www.mt.com/EULA

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

1.1 Further documents and information

This document is available in other languages online.

▶ www.mt.com/jewelry

Search for software downloads

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

Search for documents

▶ www.mt.com/library

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

▶ www.mt.com/contact

1.2 Compliance information

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

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



For further information, consult the Reference Manual (RM).

▶ www.mt.com/je-RM

2 Safety Information

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

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

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

2.1 Definitions of signal warnings and warning symbols

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

Signal words

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

Warning symbols



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



Electrical shock



Notice

2.2 Product specific safety notes

Intended use

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

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

Responsibilities of the instrument owner

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

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

Safety notes



WARNING

Death or serious injury due to electric shock

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

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



NOTICE

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

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



NOTICE

Damage to the instrument or software

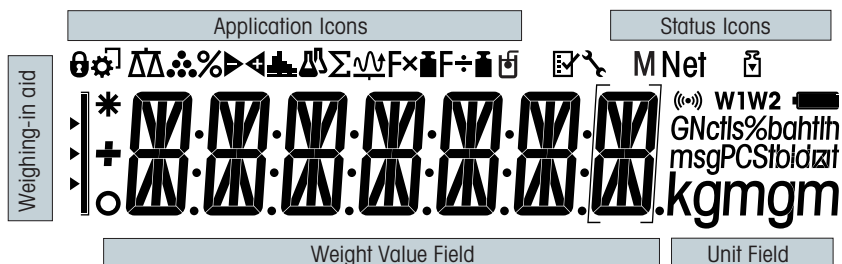
In some countries, excessive mains voltage fluctuations and strong glitches may occur. This may affect the instrument functions or damage the software.

- Use a voltage regulator for stabilizing.

A list of spare parts and accessories can be found in the Reference Manual.

3 Design and Function

3.1 Display



Application icons			
	Application weighing	Σ	Application totaling
	Application piece counting	$F \times \square$	Application multiplication factor
$\%$	Application percent weighing	$F \div \square$	Application division factor
	Application check weighing		Application density
	Application statistics		Menu locked

While an application is running, the corresponding application icon appears at the top of the display.

Status icons			
M	Indicates stored value (Memory)		Acoustic feedback for pressed keys activated
	Adjustments (calibration) started	W1	Weighing range 1 (Dual Range models only)
	Service reminder	W2	Weighing range 2 (Dual Range models only)

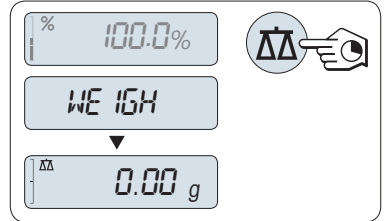
Weight value field and weighing-in aid			
	Indicates negative values		Brackets to indicate uncertified digits (approved models only)
	Indicates unstable values		Marking of nominal or target weight
	Indicates calculated values		Marking of tolerance limit T+
			Marking of tolerance limit T-

Unit field						
GNctls%bahtth msgPCStibdzaf kgmgm	g	gram	ozt	troy ounce	tls	Singapore taels
	kg	kilogram	GN	grain	tlt	Taiwan taels
	mg	milligram	dwt	pennyweight	tola	tola
	ct	carat	mom	momme	baht	baht
	lb	pound	msg	mesghal		
	oz	ounce	tlh	Hong Kong taels		

3.2 Basic principles for operation

Selecting simple weighing or terminate application

- Press and hold $\Delta\Delta$ until **WEIGH** appears on the display.
⇒ The balance returns to the simple weighing mode.

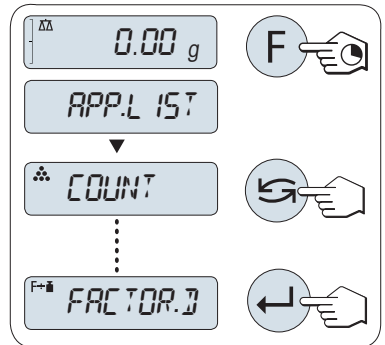


Note

How to perform simple weighing **see** Performing a simple weighing.

Selecting an application



- 1 Press and hold **F** until **APP.LIST** (application list) appears on the display.
⇒ Last active application, e.g., **COUNT** appears on the display.
- 2 Select an application by multiple pressing \curvearrowright .
- 3 Press \leftarrow to execute selected application.

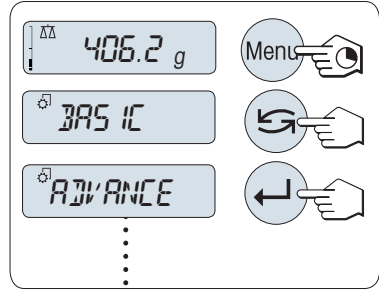


Available applications

Display	Remark	Description
COUNT	Piece counting	see application piece counting
PERCENT	Percent weighing	see application percent weighing
CHECK	Check weighing	see application check weighing
STAT	Statistics	see application statistics
TOTAL	Totaling	see application totaling
FACTOR.M	Multiplication factor	see application multiplication factor weighing
FACTOR.D	Division factor	see application division factor weighing
DENSITY	Density	see application density

Entering the menu



- 1 Press and hold **Menu** to enter main menu.
⇒ The first menu **BASIC** is displayed (except menu protection is active).
- 2 Press  repeatedly to change menu.
- 3 Press  to confirm the selection.

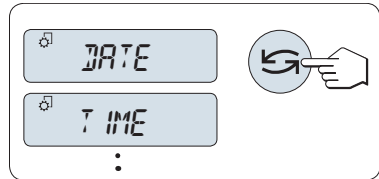


Note




Detailed description of the menu see The Menu.

Selecting menu topics

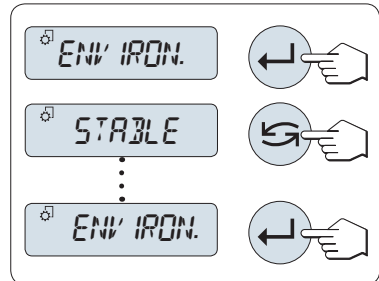
- 1 Press .
⇒ The next menu topic appears in the display.
- 2 Press  repeatedly, the balance switches to the next menu topic.



Changing settings in selected menu topic

- 1 Press .
⇒ The display shows the current setting in the selected menu topic.
- 2 Press  repeatedly, the balance switches to the next selection.
⇒ After the last selection, the first is shown again.
- 3 Press  to confirm the setting.




For store the setting see "Saving settings and closing the menu".

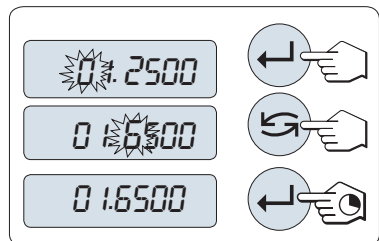


Changing settings in a submenu selection




The same procedure as for menu topics.

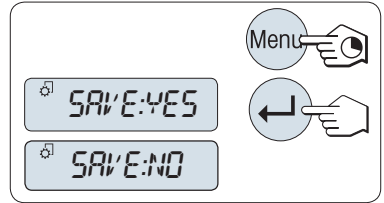
Input principle of numerical values

- 1 Press  to select a digit (cyclically from left to right) or a value (depending on the application).
⇒ The selected digit or the selected value is blinking.
- 2 Press  to increase or **F** to decrease for changing blinking digits or values.
- 3 Press and hold  to confirm the value.



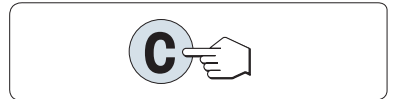
Saving settings and closing the menu

- 1 Press and hold **Menu** to leave menu topic.
⇒ **SAVE:YES** appears on the display.
- 2 Press  to toggle between **SAVE:YES** and **SAVE:NO**.
- 3 Press  to execute **SAVE:YES**.
⇒ Changes are saved.
- 4 Press  to execute **SAVE:NO**.
⇒ Changes are not saved.



Cancel

- During menu operation
- 1 Press **C** for leaving menu topic or menu selection without saving (one step back in the menu).
 - 2 To leave menu topic or menu selection without saving press **C** (one step back in the menu).
- During application operation
- Press **C** to cancel settings.
⇒ The balance returns to the previous active application.



Note

If no entry is made within 30 seconds, the balance reverts to last active application mode. Changes are not saved. If changes are made, the balance asks **SAVE:NO**.

4 Installation and Putting into Operation

4.1 Selecting the location

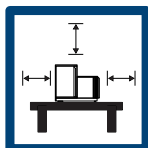
A balance is a sensitive precision instrument. The location where it is placed will have a profound effect on the accuracy of the weighing results.

Requirements of the location

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

Ensure that the instrument is:

- indoor on stable table
- with sufficient distance (> 15 cm)
- in level
- adequately lit



Avoid:

- direct sunlight
- vibrations
- strong drafts
- temperature fluctuations



4.2 Scope of delivery

Components		Carat balances		Gold balances	
		0.001 ct / 0.1 mg	0.01 mg	1 mg	10 mg
Draft shield	170 mm	✓	✓	✓	-
Weighing pan	∅ 80 mm	-	✓	-	-
	∅ 90 mm	✓	-	-	-
	∅ 120 mm	-	-	✓	-
	180 × 180 mm	-	-	-	✓
Draft shield element		✓	✓	-	✓
Pan support		-	-	-	✓
Protective cover		✓	✓	✓	✓
Universal AC adapter (with plug set)		✓	✓	✓	✓
Carat pan	S 80 ∅ × 20 mm	✓	-	-	-
	M 90 ∅ × 30 mm	✓	-	-	-
	L 90 ∅ × 45 mm	✓	-	-	-

Components	Carat balances	Gold balances		
User Manual	✓	✓	✓	✓
Declaration of conformity	✓	✓	✓	✓

4.3 Unpacking

Open the balance packaging. Check the balance for transport damage. Immediately inform a METTLER TOLEDO representative in the event of complaints or missing accessories.

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

4.4 Installing components



CAUTION

Injury due to breaking glass

Careless handling of the glass components can lead to breakage off glass and damage cuttings.

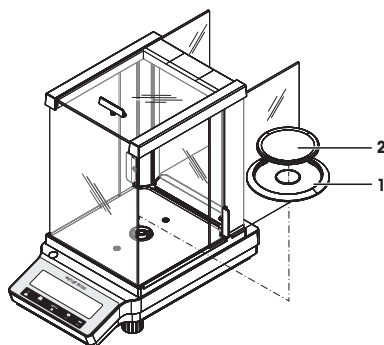
- Always proceed focused and with care.

Balances with readability of 0.0001 ct / 0.01 mg and 0.001 ct / 0.1 mg

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

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

Further information for cleaning the draft shield, see chapter "Cleaning the glass draft shield".

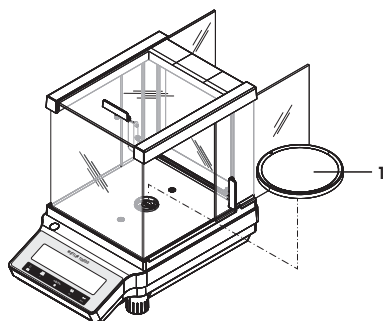


Balances with readability of 1 mg

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

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

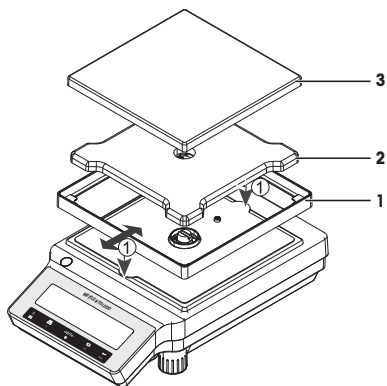
Further information for cleaning the draft shield, **see** chapter "Cleaning the glass draft shield".



Gold balances with readability of 10 mg

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

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



4.5 Installing protective cover



NOTICE

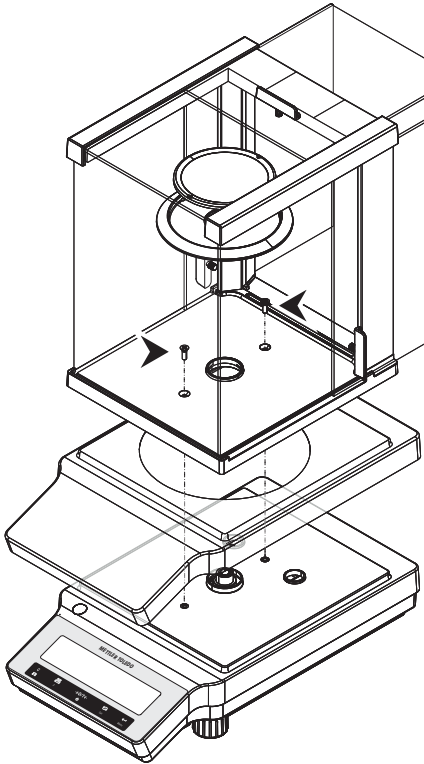
Damage to the instrument or malfunction due to the use of unsuitable parts

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

Make sure using the correct protective cover, **see** Accessories and Spare Parts.

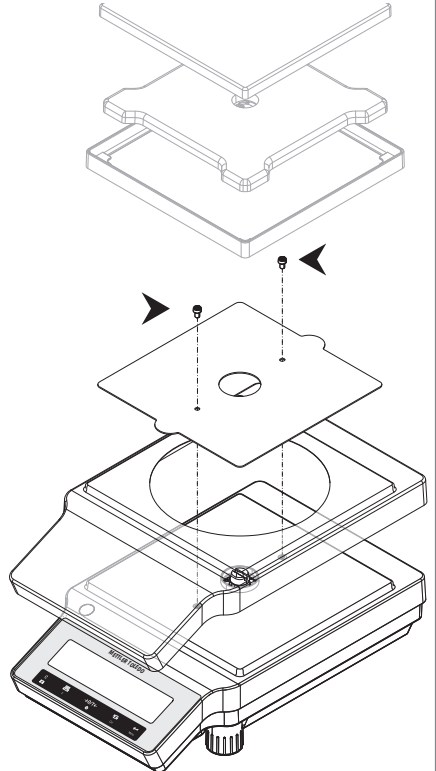
Balances with draft shield

Install the protective cover according to the illustrations below, using a screwdriver Philips No. 2.



Balances without draft shield

Install the protective cover according to the illustrations below, using a screwdriver Torx TX20.



4.6 Connecting the balance



⚠ WARNING

Death or serious injury due to electric shock

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

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



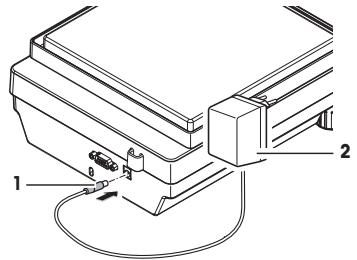
NOTICE

Damage to the AC/DC adapter due to overheating

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

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

- Install the cables so that they cannot be damaged or interfere with operation.
 - Insert the power cable in a grounded power outlet that is easily accessible.
- 1 Connect the AC/DC adapter (1) to the connection socket on the back of your balance.
 - 2 Connect the power cable (2) to the power socket.
 - ⇒ The balance performs a display test (all segments in the display light up briefly), **WELCOME, Software version, Maximum load** and **Readability** appears briefly.
 - ⇒ The balance is ready for use.



Note


Always connect the AC/DC adapter to the balance before connecting to the power.

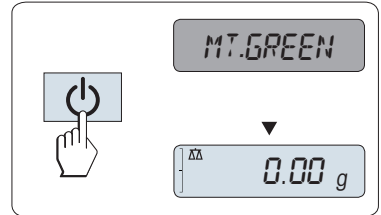
Do not connect the instrument to a power outlet controlled by a switch. After switching on the instrument, it must warm up before giving accurate results.

4.7 Setting up the balance

4.7.1 Switching on the balance

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

- The balance is connected to the power supply.
- The balance is in **STANDBY** mode. **MT.GREEN** appears on the display.
- Press .
- ⇒ The balance is ready for weighing or for operation with the last active application.



Legal-for-trade

Approved balances can only be switched on by pressing  in selected countries.

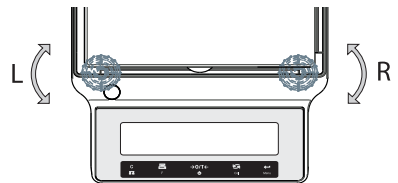
4.7.2 Leveling the balance

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

There are two adjustable leveling feet to compensate for slight irregularities in the surface of the weighing bench.

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

- 1 Position the balance at the selected location.
- 2 Align the balance horizontally.
- 3 Turning the two front leveling feet of the housing until the air bubble is in the middle of the glass.



Example

Air bubble at 12 o'clock:



turn both feet clockwise.



Air bubble at 3 o'clock:



turn left foot clockwise, right foot counterclockwise.



Air bubble at 6 o'clock:



turn both feet counterclockwise.



Air bubble at 9 o'clock:



turn left foot counterclockwise, right foot clockwise.



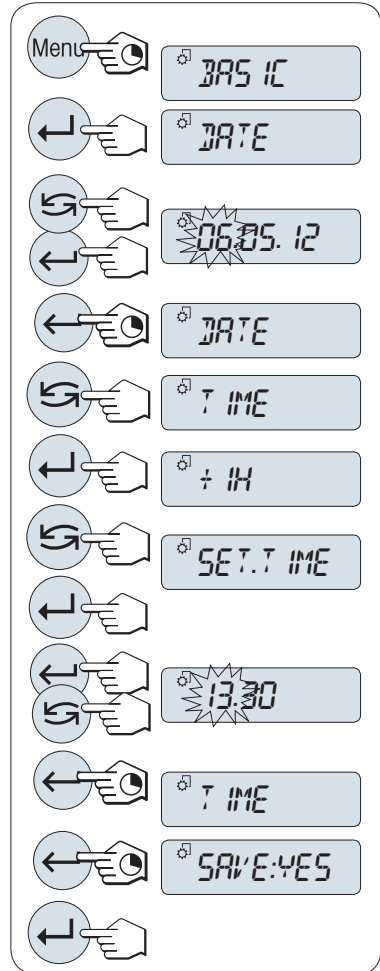
4.7.3 Setting date and time

When you put your new instrument into operation for the first time, you should enter the current date and time.

Note

- These settings are retained even if you disconnect your instrument from the power supply.
- A reset of the instrument will not change these settings.
- Set the current date according to the date format **DATE.FRM** in the menu **ADVANCE..**
- Set the current time according to the time format **TIME.FRM** in the menu **ADVANCE..**

- 1 Press and hold **Menu** until menu **BASIC** appears on the display.
- 2 Press **←** to open menu **BASIC**.
⇒ **DATE** appears.
- 3 Press **←** to confirm.
- 4 **Set current date.** Press **←** to select day, month or year; press **↻** to set current day, month or year.
- 5 Press and hold **←** to confirm the settings.
⇒ **DATE** appears..
- 6 **Set current time.** Press **↻** to select **TIME**.
- 7 Press **←** to confirm.
⇒ **+1H** appears.
- 8 Select **SET.TIME** by pressing **↻**.
- 9 Press **←** to confirm.
- 10 Press **←** to select hours or minutes; press **↻** to set current hours or minutes.
- 11 Press and hold **←** to confirm the settings.
⇒ **TIME** appears.
- 12 Press and hold **←** to store the settings.
⇒ **SAVE:YES** appears.
- 13 Press **←** to confirm.



4.7.4 Adjusting the balance

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

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



For further information, consult the Reference Manual (RM).

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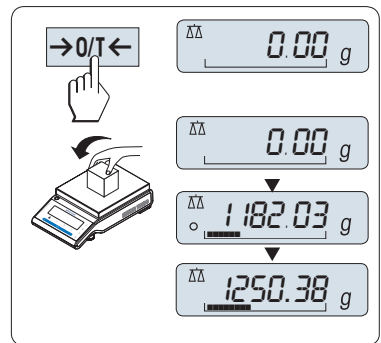
4.8 Performing a simple weighing



The weighing application allows you to perform simple weighings and how you can accelerate the weighing process.

If your balance is not in the weighing mode, press and hold the $\Delta\Delta$ key down until **WEIGHING** appears in the display. Release the key. Your balance is in the weighing mode and set to zero.

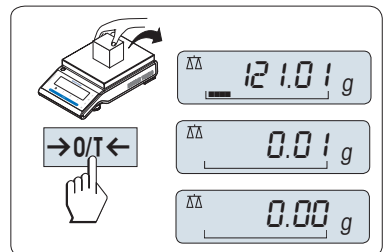
- 1 Press $\rightarrow 0/T \leftarrow$ to zero the balance.
- 2 Place the sample on the weighing pan.
- 3 Wait until the instability detector \circ disappears.
- 4 Read the result.



Zeroing

Use the $\rightarrow 0/T \leftarrow$ zeroing key before you start with a weighing.

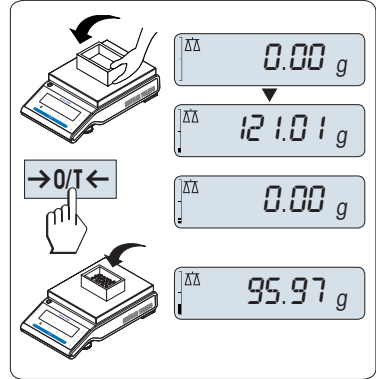
- 1 Unload the balance.
- 2 Press $\rightarrow 0/T \leftarrow$ to set the balance to zero.
All weight values are measured in relation to this zero point.



Taring

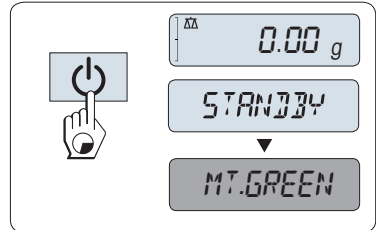
If you are working with a weighing container, first set the balance to zero.

- 1 Place empty container on the weighing pan.
⇒ The weight is displayed.
- 2 Press **→0/T←** to set the balance to zero.
⇒ **0.00 g** appears in the display.
- 3 Place weighing sample into the weighing container.
⇒ The result appears in the display.



Switching off

- Press and hold the **⏻** key until **STANDBY** appears on the display. Release the key.
⇒ **MT.GREEN** appears on the display.
- After switching on from standby mode, your balance needs no warm-up time and is immediately ready for weighing.
- To completely switch off the balance, disconnect it from the power supply.



Legal-for-trade

Standby mode is not possible with approved balances (only available in selected countries).



For further information, consult the Reference Manual (RM).

► www.mt.com/je-RM

4.9 Transporting the balance



⚠ CAUTION

Injury due to breaking glass

Careless handling with the glass components can lead to breakage of glass and damage cuttings.

- 1 Do not lift the instrument by the glass draft shield.
- 2 Always proceed focused and with care.

- 1 Press and hold the **⏻** key.
- 2 Disconnect the balance from the power supply.
- 3 Disconnect all interface cables.

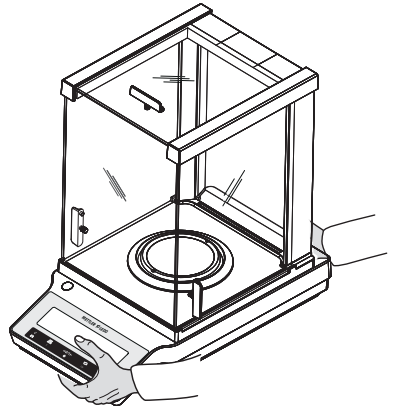
4.9.1 Transporting over short distances

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

- 1 Hold the balance with both hands as shown.
- 2 Carefully lift the balance and carry it to its new location.

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

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



4.9.2 Transporting over long distances

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

4.9.3 Packaging and storage

Packaging

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

Storage

Store the balance under following conditions:

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

5 Maintenance

To guarantee the functionality of the balance and the accuracy of the weighing results, a number of maintenance actions must be performed by the user.

5.1 Maintenance table

Maintenance action	Recommended interval	Remarks
Performing an internal adjustment	<ul style="list-style-type: none">• Daily• After cleaning• After leveling• After changing the location	see chapter "Adjustment with internal weight"
Performing routine tests (sensitivity test, repeatability test). METTLER TOLEDO recommends to perform at least a sensitivity test.	<ul style="list-style-type: none">• After cleaning	see below
Cleaning	Depending on the degree of pollution or your internal regulations (SOP), clean the instrument: <ul style="list-style-type: none">• After every use• After change of sample	see chapter "Cleaning the balance"

5.2 Performing routine tests

There are several routine tests. Depending on your internal regulations, specific routine test must be performed by the user.

METTLER TOLEDO recommends to perform an sensitivity test after cleaning and reassembling the balance.



For further information, consult the Reference Manual (RM).

► www.mt.com/je-RM

5.3 Cleaning



For further information, consult the Reference Manual (RM).

► www.mt.com/je-RM



WARNING

Death or serious injury due to electric shock

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

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

5.3.1 Cleaning the glass draft shield



CAUTION

Injury due to breaking glass

- Careless handling of the glass components can lead to breakage off glass and damage cuttings.
- Always proceed focused and with care.

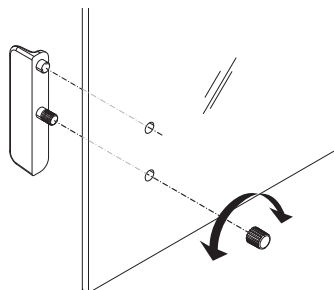
Removing or inserting sliding glass doors

It is possible to remove the sliding glass doors for cleaning or for replacing.

Note

Front and rear glass panels cannot be removed.

- 1 Remove the handle first.
- 2 Remove the sliding glass doors.
- 3 Install the handle after insertion of the glass door.



5.3.2 Cleaning the balance



NOTICE

Damage due to improper cleaning

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

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

Cleaning around the balance

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

Cleaning the removable parts

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



Cleaning the balance

- 1 Disconnect the balance from the AC/DC adapter.
- 2 Use a lint-free cloth moistened with a mild cleaning agent to clean the surface of the balance.
- 3 Remove powder or dust at first with a disposable tissue.
- 4 Remove sticky substances with a damp lint-free cloth and a mild solvent.


Note

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

5.3.3 Putting into operation after cleaning

- 1 Reassemble the balance.
 - 2 Check the functionality of the draft shield.
 - 3 Press  to switch on the balance.
 - 4 Warm up the balance. Wait 1 h for the acclimatization, before starting the tests.
 - 5 Check the level status, level the balance if necessary.
 - 6 Perform an internal adjustment.
 - 7 Perform a routine test due to the internal regulations of your company. METTLER TOLEDO recommends to perform an repeatability test after cleaning the balance.
 - 8 Press  to zero the balance.
- ⇒ The balance has been putting into operation and is ready to use.

See also

-  Leveling the balance ▶ Page 15

6 Troubleshooting

Possible errors with their cause and remedy are described in the following chapter. If there are errors that cannot be corrected through these instructions, contact METTLER TOLEDO.

6.1 Error messages

Error message	Possible cause	Diagnostic	Remedy
NO STABILITY	Vibrations at the workplace.	Place beaker with tap water on the weighing table. Vibrations cause ripples on the water surface.	<ul style="list-style-type: none"> Protect weighing location against vibrations (vibration absorber, etc.). Set weighing parameters coarser (change ENVIRON. from STABLE to STANDARD or even UNSTABLE). Find a different weighing location.
	Draft due to untight draft shield and /or open window.	Make sure draft shield or window is closed.	<ul style="list-style-type: none"> Close draft shield or window. Set weighing parameters coarser (change ENVIRON. from STABLE to STANDARD or even UNSTABLE).
	The location is not suitable for weighing.	–	Check and observe the requirements for the location, refer to "Selecting the location".
	Something is touching the weighing pan.	Check for touching parts or dirt.	Remove touching parts or clean the balance.
WRONG ADJUSTMENT WEIGHT	Wrong adjustment weight.	Check weight.	Place correct weight on the weighing pan.
REFERENCE TOO SMALL	Reference for piece counting too small.	–	Increase reference weight.
EEPROM ERROR - PLEASE CONTACT CUSTOMER SERVICE	Data in EEPROM damaged.	–	Please contact your METTLER TOLEDO customer service.
WRONG CELL DATA - PLEASE CONTACT CUSTOMER SERVICE	Defect load cell data.	–	Please contact your METTLER TOLEDO customer service.
NO STANDARD ADJUSTMENT - PLEASE CONTACT CUSTOMER SERVICE	–	–	Please contact your METTLER TOLEDO customer service.
PROGRAM MEMORY DEFECT - PLEASE CONTACT CUSTOMER SERVICE	–	–	Please contact your METTLER TOLEDO customer service.

Error message	Possible cause	Diagnostic	Remedy
TEMP SENSOR DEFECT - PLEASE CONTACT CUSTOMER SERVICE	AC/DC adapter connected to power before connecting to the balance. Temperature sensor of load cell defect.	–	Remove the AC/DC adapter from the power and connect first to the balance before connecting to the power if persist please contact your METTLER TOLEDO customer service.
WRONG LOAD CELL BRAND - PLEASE CONTACT CUSTOMER SERVICE	Wrong load cell installed.	–	Please contact your METTLER TOLEDO customer service.
WRONG TYPE DATA SET - PLEASE CONTACT CUSTOMER SERVICE	Wrong type data set.	–	Please contact your METTLER TOLEDO customer service.
BATTERY BACKUP LOST - CHECK DATE TIME SETTINGS	Backup battery/capacitor is empty. This battery/capacitor ensures that the date and time are not lost when the balance is disconnected from power.	The battery/capacitor provides enough power for approximately 2 days when having the balance not connected to the power supply.	Connect the balance to the power supply for charging the battery (e.g., during the night) or contact METTLER TOLEDO customer service.
ABOVE INITIAL ZERO RANGE	Wrong weighing pan. Pan is not empty.	Check weighing pan.	Mount correct weighing pan or unload weighing pan.
BELOW INITIAL ZERO RANGE	Wrong weighing pan. Pan is missing.	Check weighing pan.	Mount correct weighing pan.
MEM FULL	Memory full.	–	Clear the memory by finishing all applications where a measurement is ongoing.
FACTOR OUT OF RANGE	Factor is outside the allow range.	–	Select a new factor.
STEP OUT OF RANGE	Step is outside the allow range.	–	Select a new step.
OUT OF RANGE	Sample weight is outside the allow range.	–	Unload the pan and load a new sample weight.

6.2 Error symptoms


Error symptom	Possible cause	Diagnostic	Remedy
Display is dark	Instrument is switched off.	–	Switch on the instrument.
	Power plug not connected.	Check	Connect power cable to power supply.
	Power supply not connected to balance.	Check	Connect power supply.
	Power supply is faulty.	Check/test	Replace power supply.
	Wrong power supply.	Check that input data on type plate match the power supply values.	Use proper power supply.
	Connector socket on balance is corroded or faulty.	Check	Please contact your METTLER TOLEDO customer service.

Error symptom	Possible cause	Diagnostic	Remedy
	Display is faulty.	Replace display.	Please contact your METTLER TOLEDO customer service.
Operation Keys do not work	Keypad is defect.	Replace the keypad.	Please contact your METTLER TOLEDO customer service.
The value drifts into plus or minus	Room, environment not suitable.	–	Environmental recommendations <ul style="list-style-type: none"> • Windowless, non air-conditioned room, e.g., basement. • Only one person in the weighing room. • Sliding doors. Standard doors cause pressure changes. • No draft in weighing room (check with suspended threads). • No air conditioning (temperature oscillates, draft). • Acclimatize balance, take dummy measurements. • Instrument uninterruptedly connected to the power supply (24h per day).
	Direct sunlight or other heat source.	Is any sun shade (blinds, curtains, etc.) available?	Select location according to "Selecting the location" (customer responsibility).
	Weighing sample absorbs moisture or evaporates moisture.	<ul style="list-style-type: none"> • Is the weighing result with a test weight stable? • Sensitive weighing samples, e.g., paper, cardboard, wood, plastic, rubber, liquids. 	<ul style="list-style-type: none"> • Use aids. • Cover weighing sample.
	Weighing sample is electrostatically charged.	<ul style="list-style-type: none"> • Is the weighing result with a test weight stable? • Sensitive weighing samples, e.g., plastic, powder, insulating materials. 	<ul style="list-style-type: none"> • Increase air humidity in weighing chamber (45% - 50%). • Use ionizer.
	Weighing sample is hotter or colder than the air in the weighing chamber.	Weighing operation with test weight does not show this effect.	Bring weighing sample to room temperature before weighing.

Error symptom	Possible cause	Diagnostic	Remedy
	Instrument has not yet reached thermal equilibrium.	<ul style="list-style-type: none"> Was there a power outage? Was power supply disconnected? 	<ul style="list-style-type: none"> Acclimatize instrument for at least 1 hour. Depending on climatic conditions, extend this period accordingly. Instrument switched on for at least 1 hour, refer to "General data"
Display shows overload or underload	The weight on the weighing pan exceeds the weighing capacity of the instrument.	Check weight.	Reduce the weight on the weighing pan.
	Wrong weighing pan.	Slightly lift or press weighing pan. The weight display appears.	Use proper weighing pan.
	No weighing pan.	–	Install weighing pan.
	Incorrect zero point at switch-on.	–	<ul style="list-style-type: none"> Switch off balance. Disconnect and reconnect power cable.
Display flashes 0.0000	Loose cables.	Check all cable connections.	Connect all cables. Please contact your METTLER TOLEDO customer service if the problem persists.
Taring not possible	Vibrations at the workplace.	Display unstable.	Press Tare again.
		Place beaker with tap water on the weighing table. Vibrations cause ripples on the water surface.	<ul style="list-style-type: none"> Protect weighing location against vibrations (vibration absorber, etc.). Set weighing parameters coarser (change ENVIRON. from STABLE to STANDARD or even UNSTABLE). Find a different weighing location (by agreement with customer).

6.3 Status messages/Status icons

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

Icon	Status description	Diagnostic	Remedy
	Service due.	See menu topic SERV.ICON in chapter "Description of menu topic" -> "Advanced menu".	Please contact your METTLER TOLEDO-Support representative.

6.4 Putting into operation after fixing an error

After fixing an error, perform the following steps to put the balance into operation:

- Ensure that the balance is completely reassembled and cleaned.
- Reconnect the balance to the AC/DC adapter.

7 Technical Data

7.1 General data

Standard power supply

AC/DC adapter:

Input: 100 – 240 V AC \pm 10%, 50 – 60 Hz, 0.5 A, 24 – 34 VA

Output: 12 V DC, 1.0 A, LPS (Limited Power Source)

Balance power consumption:

12 V DC, 0.3 A

If the balance is used above 2000 m mean sea level, the optional power supply must be used.

Optional power supply

AC/DC adapter:

Input: 100 – 240 V AC \pm 10%, 50 – 60 Hz, 0.8 A, 60 – 80 VA

Output: 12 V DC, 2.5 A, LPS (Limited Power Source)

Cable for AC/DC adapter:

3-core, with country-specific plug

Polarity:



Protection and standards

Overvoltage category:

II

Degree of pollution:

2

Protection:

Protected against dust and water

Standards for safety and EMC:

See Declaration of Conformity

Range of application:

Use only indoors in dry locations

Environmental conditions

Height above mean sea level:

Up to 2000 m (standard power supply)

Up to 4000 m (optional power supply)

Ambient temperature:

+5 °C – +40 °C

Storage condition:

-25 °C – +70 °C

Relative air humidity:

Max. 80% up to 31 °C, linearly decreasing to 50% at 40 °C, non-condensing

Warm-up time:

At least **30** minutes (0.01 mg and 0.1 mg models **60** minutes) after connecting the balance to the power supply.

Materials

Housing:

Top Housing: ABS

Bottom housing: Die-cast aluminum, lacquered

Weighing pan:

ø 80 mm and 90 mm: Stainless steel X2CrNiMo 17-12-2 (1.4404)

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

Draft shield element:

0.01 mg and 0.1 mg models: Stainless steel X5CrNi 18-10 (1.4301)

10 mg models: ABS

Draft shield:

ABS, glass

Protective cover:

PET

Backup battery:

Capacitor (saves date and time for approximately two days)

8 Disposal

In conformance with the European Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.



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

GWP®

Good Weighing Practice™

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

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

 www.mt.com/GWP

www.mt.com/jewelry

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