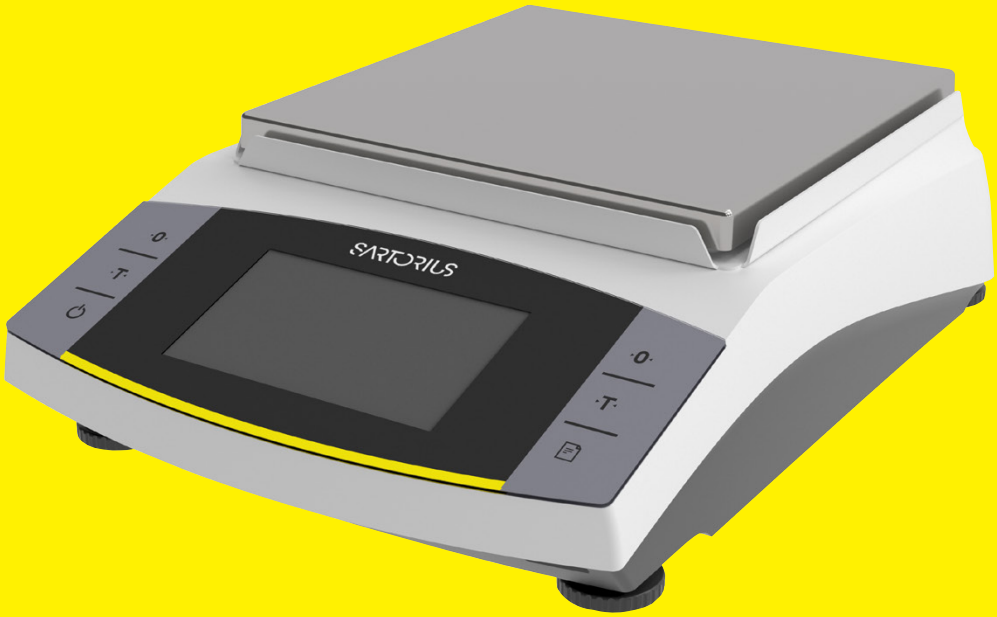
Operating Instructions | Betriebsanleitung | Mode d'emploi | Instrucciones de manejo | Manuale d'uso | Instruções de Operação

Original Operating Instructions | Original-Betriebsanleitung
Mode d'emploi original | Instrucciones de manejo originales | Manuale d'uso originale | Instruções de Operação Originais

Entris® II Advanced Line

BCA Models | Modelle BCA | Modèles BCA | Modelo BCA | Modelli BCA | Modelos BCA
Precision Balances | Präzisionswaagen | Balances de précision | Balanzas de precisión
Bilance di precisione | Balanças de Precisão



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SARTORIUS

Contents

1 About this Manual

1.1 Scope

These instructions are part of the device. These instructions apply to the device in the following versions:

Device	Model [1) 2)]
Entris® BCA precision balance with frame draft shield, readability 10 mg | 0.1 g	BCA822I-1x | BCA822-1x | BCA1202I-1x | BCA1202-1x | BCA2202I-1x | BCA2202-1x | BCA3202I-1x | BCA3202-1x | BCA4202I-1x | BCA4202-1x | BCA6202I-1x | BCA6202-1x | BCA2201I-1x | BCA2201-1x | BCA5201I-1x | BCA5201-1x | BCA8201I-1x | BCA8201-1x | BCA10201I-1x | BCA10201-1x | BCA12201I-1x | BCA12201-1x

1) Country-specific marking in model, x =	
S	Standard balances without country-specific additions
SAR	Standard balances with country-specific additions for Argentina
SJP	Standard balances with country-specific additions for Japan
SKR	Standard balances with country-specific additions for South Korea
OBR	Balances with approval for Brazil
OIN	Balances with approval for India
OJP	Balances with approval for Japan
ORU	Balances with approval for Russia
OCN	Balances with approval for China
CEU	Conformity-assessed balances with EU type examination certificate without country-specific additions
CFR	Conformity-assessed balances with EU type examination certificate only for France

2) Model-typical marking	
I-1x	Devices with internal calibration and adjustment function

1.2 Other Applicable Documents

In addition to these instructions, please observe the following documents: Installation instructions for the accessories, e.g. printer

1.3 Target Groups

These instructions are written for the following target groups. The target groups must have acquired the knowledge indicated below.

Target group	Knowledge and Qualifications
User	The user is familiar with the operation of the device and the associated work processes. The user knows the dangers that can occur when working with the device and can avoid these dangers. The user has been trained in the operation of the device.
Operator	The operator of the device is responsible for ensuring compliance with workplace health and safety regulations. The operator must ensure that all persons who work with the device have access to the relevant information and are trained in working with the device.

1.4 Symbols Used

1.4.1 Warnings in Operation Descriptions

⚠ WARNING
Denotes a hazard that may result in death or severe injury if it is **not** avoided.

⚠ CAUTION
Denotes a hazard that may result in moderate or minor injury if it is **not** avoided.

NOTICE
Denotes a hazard that may result in property damage if it is **not** avoided.

1.4.2 Other Symbols

▶	Required action: Describes actions that must be carried out.
▷	Result: Describes the result of the actions carried out.
[ ]	Text inside brackets refers to control and display items.
[ ]	Text inside brackets indicates status, warning, and error messages.
M	Indicates information for legal metrology for conformity-assessed (verified) devices. Conformity-assessed devices are also referred to as "verified" in these instructions.

Figures on the Operating Display

The figures on the operating display of the device may differ from those in these instructions.

2 Safety Instructions

2.1 Intended Use

The device is a high-resolution balance, which can be used indoors, e.g. in industrial areas. The device was developed for the accurate determination of the mass of materials in liquid, paste, powder, or solid form.

Appropriate containers must be used for loading each type of material.

The device is exclusively designed for use according to these instructions. Any further use beyond this is considered **improper**.

If the device is used **improperly**: The device's protective systems may be impaired. This can lead to unforeseeable personal injury or property damage.

Operating Conditions for the Device

Do **not** use the device in potentially explosive environments. Only use the device indoors.

The device may only be used with the equipment and under the operating conditions described in the Technical Data section of these instructions.

2.1.1 Modifications to the Device

If the device is modified, for example by attaching extra components: The safety of the device may be impaired or the device compliance may lose its validity.

If you have any queries regarding modifications to the device, contact Sartorius.

2.1.2 Device Repairs and Maintenance

Specialist knowledge about the device is required in order to carry out repair and maintenance work on it. If the device is **not** repaired or serviced by a specialist: The safety of the device may be impaired or the test marks may lose their validity.

We recommend that any repair work, even that not covered by the warranty, is carried out by Sartorius Service or after consulting with Sartorius Service.

Only the maintenance tasks described in these instructions should be carried out. For maintenance tasks that need to be carried out by Sartorius Service, contact Sartorius Service.

2.2 Personnel Qualification

If individuals who do **not** have sufficient knowledge on the safe handling of the device carry out work on the device: Those individuals may injure themselves or other people nearby.

- ▶ Ensure that all persons working on the device possess the necessary knowledge and qualifications (for description, see Chapter "1.3 Target Groups", page 7).
- ▶ If a particular qualification is required for the actions described: These actions must be performed by the required target group.
- ▶ If **no** qualification is required for the actions described: Have these actions carried out by the "user" target group.

2.3 Significance of these Instructions

Failure to follow the instructions in this manual may have serious consequences, e.g. danger to individuals.

- ▶ Read the instructions carefully and in full.
- ▶ Ensure that the information contained in these instructions is available to all individuals working on the device.
- ▶ Retain the instructions.
- ▶ If these instructions are lost, request a replacement or download the latest version from the Sartorius website (www.sartorius.com).

2.4 Device Functionality

A damaged device or worn parts may lead to malfunctions or cause hazards which are difficult to recognize.

- ▶ Only operate the device when it is safe and in perfect working order.
- ▶ Comply with the maintenance intervals (for intervals and maintenance work, see Chapter "9.4 Maintenance Schedule", page 42).
- ▶ Have any malfunctions or damage repaired immediately by Sartorius Service personnel.

2.5 Electrical Equipment

2.5.1 Damage to the Device's Electrical Equipment

Damage to the device's electrical equipment, e.g., damaged insulation, may result in unforeseeable hazards.

- ▶ If the electrical equipment of the device is defective, cut off the power supply and contact Sartorius Service.
- ▶ Keep live parts away from moisture. Moisture can cause short circuits.

2.5.2 Power Supply Unit and Power Supply Cable

Serious injury can result, e.g. from electric shocks, if an unsuitable/inadequately dimensioned power cord or unsuitable power supply unit is used.

- ▶ Only use the original power supply unit and original power supply cable.
- ▶ If the power supply unit or power supply cable needs to be replaced: Contact Sartorius Service. Do **not** repair or modify the power supply unit or power supply cables.

2.6 Conduct in an Emergency

If an emergency occurs, e.g., due to the malfunctions of the device or dangerous situations: People might get injured. The device must be immediately taken out of operation:

- ▶ Disconnect the device from the power supply by disconnecting the power supply cable.
- ▶ Secure the device to prevent it from restarting.

2.7 Accessories, Consumables, and Spare Parts

The use of unsuitable accessories and spare parts can affect the functionality and safety of the device and have the following consequences:

- Risk of injury to persons
- Damage to the device
- Device malfunctions
- Device failure

- ▶ Only use approved accessories and spare parts supplied by Sartorius.
- ▶ Only use accessories and spare parts that are in proper working order.

3 Device Description

3.1 Device Overview

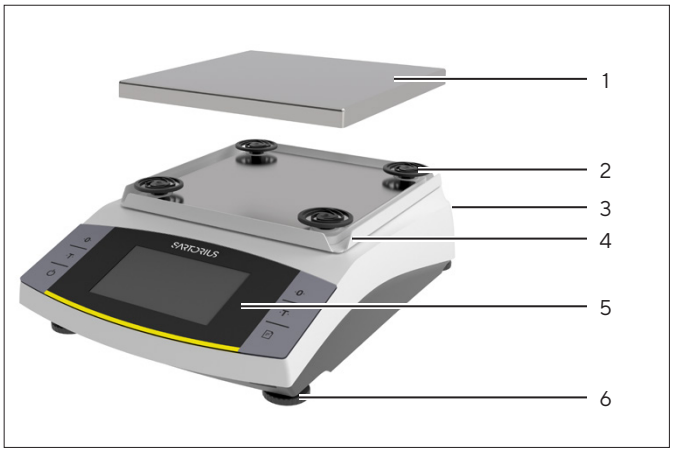


Fig. 1: Precision balance (front view)

Pos.	Name	Description
1	Weighing pan	For placing the sample on the balance
2	Shock absorber	
3	Manufacturer's ID label	Attached to the rear of the device
4	Frame draft shield	
5	Control unit	
6	Leveling foot	Used to level the balance, is manually adjustable

3.2 Device Connections

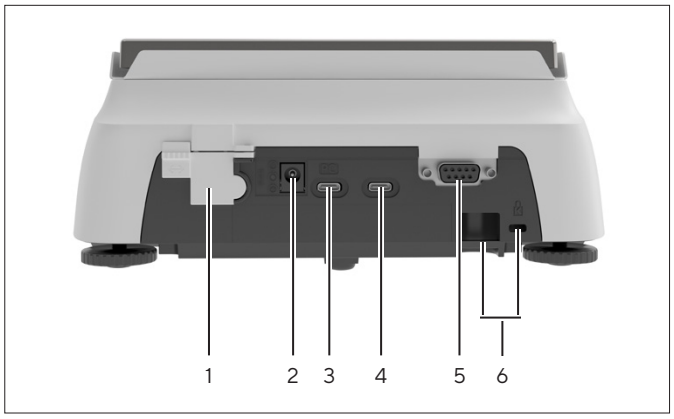


Fig. 2: Precision balance (rear view)

Pos.	Name	Description
1	Access switch	Protects the device from changes to the device settings. Is sealed for conformity-assessed devices.
2	Power supply	Connection for power supply to the device
3	PC-USB	USB-C connection, for connection to a PC
4	USB	USB-C connection, for connection to a printer, USB stick, FTDI cable, or a second display.
5	RS232 connection	9-pin, for connection to a printer, PC, or a second display
6	Slot	For attaching an anti-theft device, e.g., a Kensington lock

3.3 Conformity-assessed Devices

Some settings of conformity-assessed models are protected against user changes, e.g., external calibration or the "Safety level" in the "Weighing" menu. This measure is intended to ensure the suitability of the devices for use in legal metrology.

4 Operating Concept

4.1 Operating Display

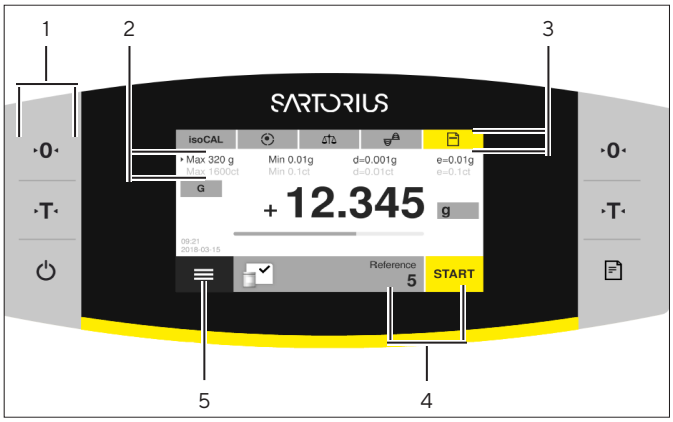


Fig. 3: Operating display (example)

Pos.	Name	Description
1	Toolbar	
2	Metrological data	
3	Function bar	
4	Application toolbar	– Shows the selected application. – Used to access application-specific parameters.
5	Main menu	Shows the available menus and applications.

4.2 Weighing Range Display

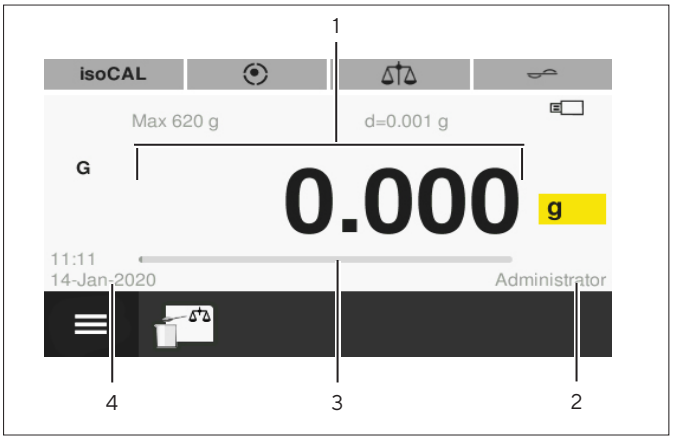


Fig. 4: Weighing range display (example)

Pos.	Name	Description
1	Measured value	Displays the current measured value.
2	User	Shows the logged-in user.
3	Bar graph	Displays the measured value as a percentage of weighing capacity utilization.
4	Time / date	

4.3 “Main Menu” Display

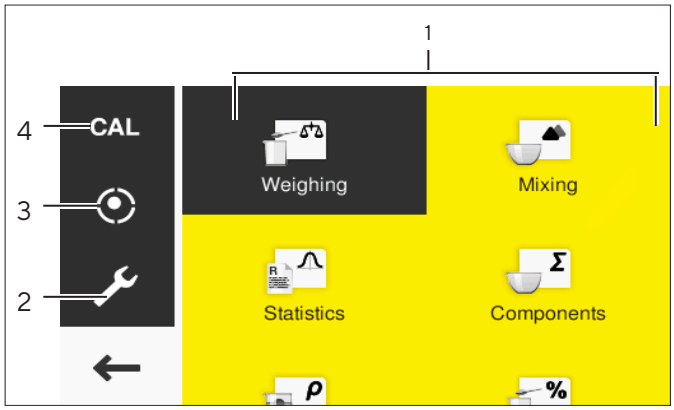


Fig. 5: “Main menu” display (example)

Pos.	Name	Description
1	Application management	Shows all available applications.
2	Settings	Accesses the system settings of the balance.
3	Leveling	Opens the leveling function of the balance.
4	Calibrate balance	Opens the menu for calibrating the balance.

4.4 Input Screens

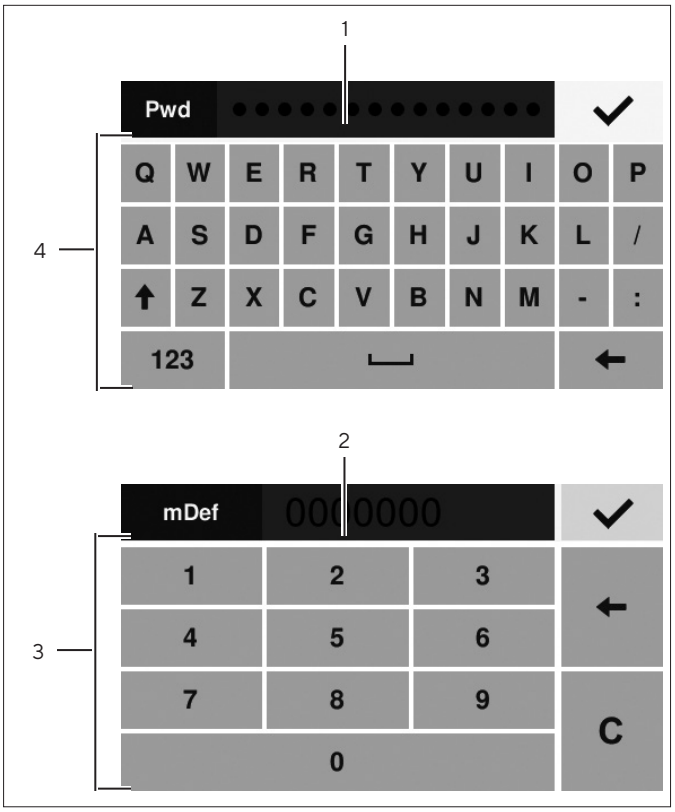


Fig. 6: Alphanumeric keypad and numerical keypad (example)

Pos.	Name	Description
1	Input field	
2	Input field with input assistance	Indicates which values can be entered in the entry field, e.g. only numbers.
3	Numeric keypad	
4	Alphanumeric keypad	

4.5 Conformity-assessed Devices Display

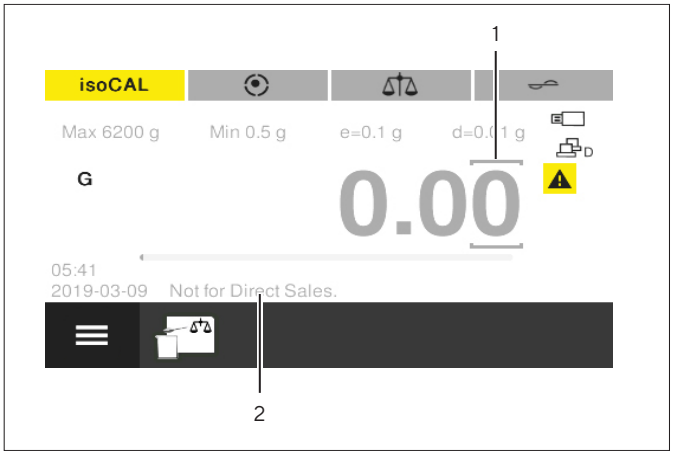


Fig. 7: Weighing range display for conformity-assessed devices (example)

Pos.	Name	Description
1	Labeled points	Labels the differentiated points.
2	Model-specific information	Optional display

4.6 Status Display of the Buttons

The buttons on the device may have different statuses. The principle is explained with the following example:

Symbol	Name	Description
G	Button enabled	The button is highlighted orange. Pressing the button opens a menu, for example.
G	Inactive button	The button is highlighted white. **No** action, e.g., toggle between weight units, can be carried out.

4.7 Buttons

Symbol	Name	Description
	[On/Off] button	– When the button is pressed: Switches the operating display on. – If the button is held down: Switches the operating display to standby mode.
	[Zero] button	Zeroes the device.
	[Tare] button	Starts taring.
	[Print] button	Exports the readouts to the integrated data interfaces.
	[Menu] button	Opens the main menu.
	[isoCAL] button	– If the button is highlighted orange: Indicates that the device needs to be calibrated and adjusted. – Starts the isoCAL function.
	[Leveling] button	– Indicates that the device is leveled. – In the main menu: Opens the Leveling Wizard.
	[Start leveling] button	– Indicates that the device needs to be leveled. – Starts the Leveling Wizard.
	[Ambient condition] button	Switches between the ambient conditions “v. stable”, “stable”, “unstable”, and “v. unstable”.
	[Application filter] button	Switches between the “weighing” and “dosing” application filters.
	[Toggle between weight units] button	– Once the weight value is stable: Indicates the set weight unit, e.g., [g] for “grams”. – When the button is pressed: Opens the settings for toggling between weight units and for accuracy.
	[**Invalid** weight value] button	– For conformity-assessed models **only**. – Indicates that the weight value is invalid. – When the button is pressed: Opens a message for rectifying the problem, e.g., that the device needs to be leveled.
	[Exit GLP] button	Exits the GLP printout and starts printing the GLP footer.
	[Start GLP] button	– Starts the GLP printout and starts printing the GLP header. – Prints the defined batch and/or sample ID.
	[Apply] button	Adopts the next component or the next weight value.
	[Start] button	Starts an application.

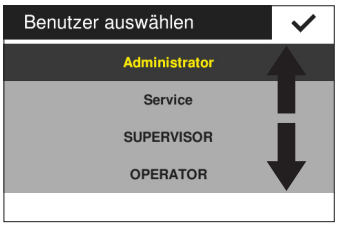
Symbol	Name	Description
END	[End] button	Ends an application.
	[Last value] button	Toggles between the current weight value display and the last weight value display.
	[Report] button	If an application is active, e.g., statistics: Opens the report of the application.
	[Very unstable] button	If the “Animal Weighing” application is active: Classifies the sample or the environment as very unstable.
	[Unstable] button	If the “Animal Weighing” application is active: Classifies the sample or the environment as unstable.
	[Slightly unstable] button	If the “Animal Weighing” application is active: Classifies the sample or the environment as slightly unstable.
Net	[Net] button	Indicates that a net value is being displayed.
Net1	[Net 1] button	Indicates that an individual value is being displayed, e.g., in the “Mixing” application.
Hold	[Hold] button	Indicates that a peak hold is being displayed, e.g., in the “Peak hold” application.
Qnt	[Quantity] button	Indicates that a quantity is being displayed.
	[Mean value] button	Indicates that a mean value is being displayed.
Total	[Total] button	Indicates that a total weight is being displayed, e.g., in the “Mixing” application.
CAL	[CAL] button	Opens the “Calibrate balance” menu.
	[Settings] button	Opens the “Settings” menu.
	[Back] button	Closes the main menu and switches back to the operating display.
	[Confirm] button	Saves a selection or entry.
	[Input] button	Opens the alphanumeric keypad or numerical keypad for inputting values.

4.8 Displays in the Operating Display

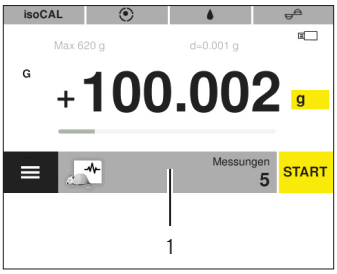
Symbol	Name	Description
− +	[Sign] display	Indicates whether the value being displayed is positive or negative.
›0‹	[Zero] display	For some conformity-assessed devices: Indicates that the device has been zeroed.
%	[Percent] display	Indicates that a percentage value is being displayed.
O	[Computed value] display	If the “Conversion” or “Peak hold” application is active: Indicates that a calculated value or frozen value is being displayed.
Net	[Net] display	Indicates that a net value is being displayed.
G	[Gross] display	Indicates that a gross value is being displayed.
D	[PC connection] display	Indicates that a PC has been detected at the USB-PC port.
H	[Second display] display	Indicates that an FTDI cable or a second display has been detected at the USB port.
	[Printer] display	Indicates that a printer has been detected at the USB port.
	[USB] display	Indicates that a USB stick has been detected at the USB port.
⚠	[**Invalid** weight value] display	Indicates that the display does **not** contain a weight value, but is instead the calculated result of an application, e.g., for the “Totalizing” application.

4.9 Navigating the Menus

Procedure



▶ In order to navigate within a display, e.g., in the settings or application management: Swipe the operating display in the desired direction, e.g., upwards or downwards.



▶ Press the application toolbar (1).
▷ The display containing the application-specific parameters opens.

▶ To modify the parameters in an application: Select an application in Application Management.

4.10 “Main Menu” Menu Structure

4.10.1 “Applications” Menu Structure

Level 1	Description
Weighing	Opens the “Weighing” application. The “Weighing” application determines the weight of a sample within the device’s specific weighing range.
Mixing	Opens the “Mixing” application. Use the “Mixing” application to weigh up to 99 components one after the other for a mixture or formula in one container. The balance is automatically tared after each component is weighed. The weight value of the individual component or the total weight can be displayed.
Statistics	Opens the “Statistics” application. Use the “Statistics” application to save up to 99 weight values and calculated values and statistically analyze them.
Components	Opens the “Components” application. Use the “Components” application to weigh up to 99 weight values. The components can be weighed in various containers. Each container can be tared before each component is weighed.
Density	Opens the “Density” application. Use the “Density” application to determine the density of solid samples using a density set based on the buoyancy method. The density is determined using Archimedes’ Principle.
Percentage	Opens the “Percent” application. Use the “Percent” application to determine the percentage share or the percentage difference of the sample based on a reference weight.
Conversion	Opens the “Conversion” application. Use the “Conversion” application to multiply the weight value by a user-defined factor. The selected factor is saved to protected memory.
Animal weighing	Opens the “Animal weighing” application. The “Animal Weighing” application is used for moving samples, e.g., live animals, and for weighing in unstable environments. A measurement cycle is automatically carried out with a defined number of measurements for each object to be weighed. The individual measurements are averaged, and this average is displayed as the result.
Check-weighing	Opens the “Checkweighing” application. Use the “Checkweighing” application to check whether a weight value falls within the specified tolerances. This application also makes it easy to weigh in samples to a specified target weight.
Peak hold	Opens the “Peak hold” application. The “Peak hold” application calculates the maximum weight value of a sample (peak value). The value remains on the display for five seconds after the sample has been removed from the balance.
Counting	Opens the “Counting” application. The “Counting” application counts parts with approximately equal weight by comparing with a reference sample.
Pipette test	Opens the “Pipette test” application. Use the “Pipette test” application to save up to 99 pipette measurements and statistically analyze them.

4.10.2 "CAL" Menu Structure

Level 1	Description
CAL-Extern	Activates external calibration and external adjustment.
CAL-Intern	Activates internal calibration and internal adjustment.
Reprotest	Calculates the reproducibility of the device. Reproducibility describes the ability of the balance to display matching results under the same test conditions. The standard deviation is calculated by three individual measurements with an external weight.

4.10.3 "Settings" Menu Structure

Level 1	Level 2	Level 3	Description
Language			
Date and time	Date		
	Date format		
	Time		
	Time format		
Device information			Displays device information on: – Manufacturer – Model – Serial number – Version BAC – Version APC – Revision APC – Logged-in user (**only** if user management active)
Cal.-/adj. settings	isoCAL		
	Calibration report		
Weighing	SQmin		Must be activated by Sartorius Service.
	Safety Level		
	Ambient conditions		
	Application		
	Stability signal		
	Zero/Tare	Zero/tare function	
		Automatic zero	
		Zero/tare at power on	

Level 1	Level 2	Level 3	Description
Printout	Printout		
	Manual print	ISO / GLP printout	Only active if “Manual with stability” or “Manual without stability” is selected in “Printout”.
		Tare after print	
		Manual print format	
	Automatic print	Auto print interval	Only active if “Printout”, “Autom. with stability” or “Autom. without stability” is selected in “Printout”.
		Interval time	
		Auto print format	
	IDs	Set device ID	Only active if ISO / GLP printout is activated.
		Set additional ID	
		Batch ID function	
		Batch ID2 function	
		Sample ID function	
		Sample ID2 function	
SBI protocol	SBI function		
	Manual print format		Only active if “Manual with stability” or “Manual without stability” is selected in “SBI function”.
	Automatic print	Autom. print cancel	Only active if “Autom. with stability” or “Autom. without stability” is selected in “SBI function”.
		Auto print interval	
		Interval time	
		Autom. print format	
Connections	PC-USB	Device used	
		Device / Protocol	Only active if a PC is connected.
		Spreadsheet	Only active if “PC spreadsheet” is selected under “PC USB / device/ protocol”.
	USB	Device used	
		Device / Protocol	The submenu depends on the device or storage medium connected.
		RS232 configuration	Only active if “SBI” or “xBPI” is selected under “USB / device/protocol”.
	RS232	Device / Protocol	
		RS232 configuration	Only active if “SBI” or “xBPI” is selected under “RS232 / device/protocol”.
		Foot switch function	

Level 1	Level 2	Level 3	Description
User interface	Display brightness		
	Acoustic signal		
	Display date / time		
	Display current user		
	Recall last value		
	Toggle unit		
	Easy filter setting		
	Application settings access		
User management	New user		
	Modify user		
	Delete user		
	Set user password		Only active if a user with the “Operator” or “Supervisor” role is logged in.
	Set admin password		
More settings	Next maintenance		
	Reset settings		
	Enable service mode		

4.11 Parameter Structure

4.11.1 Parameters in the “Settings / Language” Menu

Parameters	Settings	Explanation
Language	English*, German, French, Spanish, Italian, Japanese, Russian, Chinese, Polish, Portuguese, Korean, Turkish, Hungarian	Defines the menu language.

* Factory setting

4.11.2 Parameters in the “Settings / Date and Time” Menu

Parameters	Settings	Explanation
Date		Defines the date.
Date format	DD-MMM-YY	Sets the date display format to DD.MMM.YY
	MMM-DD-YY	Sets the date display format to MMM.DD.YY
	YY-MM-DD (ISO)*	– Sets the date display format to ISO FORMAT YYYY-MM-DD. – Sets the time to 24-hour mode.
Time		Sets the time.
Time format**	24h*	Sets the time to 24-hour mode.
	12h (AM/PM)	Sets the time to 12-hour mode.

* Factory setting
** Only active if “YY-MM-DD (ISO)” is **not** selected under “Date format”.

4.11.3 Parameters in the “Settings / Cal./Adj. Settings” Menu

Parameters	Settings	Explanation
isoCAL	Off	Switches the isoCAL function off.
	Info, manual start	If the balance needs to be calibrated and adjusted: The [isoCAL] button is highlighted orange. The isoCAL function must be manually triggered with the [isoCAL] button.
	Automatic*	Activates the automatic calibration and adjustment function as soon as predefined time intervals or temperature values are exceeded.
Calibration report		Displays max. 99 calibration reports per calendar day. Displays max. 30 calendar days.

* Factory setting

4.11.4 Parameters in the “Settings / Weighing” Menu

Parameters	Settings	Explanation
Safety Level	High*	If the balance is **not** correctly leveled or a calibration/adjustment is not needed or the minimum initial weight requirements according to USP are **not** met: – A warning message is displayed. – **No** data is transmitted. – The printout is blocked. – Starting and saving in applications is blocked.
	Standard	If the balance is **not** correctly leveled or a calibration/adjustment is not needed or the minimum initial weight requirements according to USP are **not** met: – A warning message is displayed.
	Low	– If the balance is **not** leveled: The [Start leveling] button is active. – If the balance needs to be calibrated and adjusted: The [isoCAL] button is active.
Ambient conditions	Very stable	Sets the ambient conditions to “very stable”. Activates a fast change in the weight values in the event of a load change with a high output rate. Recommended for the following work environment: – Very stable table near the wall – Closed and calm room
	Stable*	Sets the ambient conditions to “stable”. Recommended for the following work environment: – Stable table – Slight movement in the room – Slight draft
	Unstable	Sets the ambient conditions to “unstable”: Activates the delayed change in weight values with a reduced output rate. Recommended for the following work environment: – Simple office desk – Room with moving machinery or personnel – Slight air movement
	Very unstable	Sets the ambient conditions to “very unstable”: Activates a significantly delayed change in the weight values and long wait for stability with a further reduction in the output rate. Recommended for the following work environment: – Noticeable and slow floor vibrations – Noticeable building vibrations – Weighed goods moved – Very strong air movements
Application	Weighing*	Activates a filter that enables a fast change in the display for very fast load changes. Display changes with minimal load changes (in the digit range) occur more slowly.
	Dosing	Activates a filter that enables a very fast change in the display with minimal load changes, e.g., when dosing or filling vessels.

* Factory setting

Parameters	Settings	Explanation
Stability signal	High accuracy	
	Medium accuracy*	
	Fast	

* Factory setting

4.11.5 Parameters in the “Settings / Weighing / Zero/Tare” Menu

Parameters	Settings	Explanation
Zero / tare function	Without stability	The function of the [Zero] or [Tare] button is executed immediately once the button is pressed.
	With stability*	The function of the [Zero] or [Tare] button is executed if stability exists when the button is pressed.
Automatic zero	On*	Activates automatic zeroing. The display is automatically set to zero in case of a deviation of 0 less than (X).
	Off	Deactivates automatic zeroing. Zeroing must be triggered with the [Zero] button.
Zero / tare at power on	On*	Activates the initial taring / zeroing. The device is tared or zeroed after it is switched on.
	Off	Deactivates the initial taring / zeroing. After it is switched on, the device shows the same value as before it was last switched off.
SQmin	On*	Activates the SQmin application.
	Off	Deactivates the SQmin application.

* Factory setting

4.11.6 Parameters in the “Settings / Printout” Menu

Parameters	Settings	Explanation
Printout	Manual without stability	The print process can be started manually at any time.
	Manual with stability*	If the [Print] button is pressed: The print command is only executed once stability is achieved.
	Auto without stability	– The data is printed automatically. – **No** stability is required for printout. – The printout can be without unit symbols.
	Auto without stability	– The data is printed automatically. – No stability is required for printout.
	Print after weight change	Prints after a threshold for device stability has been exceeded and the weight has previously been reduced to less than half of the threshold.

* Factory setting

4.11.7 Parameters in the “Settings / Printout / Manual Print” Menu

Parameters	Settings	Explanation
ISO / GLP printout	On	Activates the ISO / GLP printout.
	Off*	Deactivates the ISO / GLP printout.
Tare after print	On	Tares the device automatically after every printout.
	Off*	Deactivates automatic taring after printout.
Manual print format	Value*	Prints the weight value.
	Date, Value	Prints the weight value and a time stamp.
	Value (N, T, G#)	Prints a weight value block (net, tare, calculated gross).
	Date, Value (N, T, G#)	Prints a time stamp and a weight value block (net, tare, calculated gross value).

* Factory setting

4.11.8 Parameters in the “Settings / Printout / Automatic Print” Menu

Parameters	Settings	Explanation
Auto print interval	Standard	Model-specific output rate for weight determination < 1 s.
	Interval time*	The interval time is used as the output rate.
Interval time		Defines the interval time.
Auto print format	Value*	Prints the weight value.
	Date, Value	Prints the weight value and a time stamp.

* Factory setting

4.11.9 Parameters in the “Settings / Printout / ID” Menu

Parameters	Settings	Explanation
Set device ID		Defines an ID number for the device.
Set additional ID		Sets an additional ID number for the device.
Batch ID function	On	Activates the output of the batch ID number in the ISO / GLP printout.
	Off*	Deactivates the output of the batch ID number in the ISO / GLP printout.
Batch ID2 function	On	Activates the output of the batch ID2 number in the ISO / GLP printout.
	Off*	Deactivates the output of the batch ID2 number in the ISO / GLP printout.
Sample ID function	On	– Activates the sample ID. – The sample ID is queried before each printout.
	Autom. increment	Counts up the sample ID automatically.
	Autom. decrement	Counts down the sample ID automatically.
	Off*	Deactivates the sample ID.
Sample ID2 function	On	– Activates the sample ID2. – The sample ID is queried before each printout.
	Autom. increment	Counts up the sample ID2 automatically.
	Autom. decrement	Counts down the sample ID2 automatically.
	Off*	Deactivates the sample ID2.

* Factory setting

4.11.10 Parameters in the "Settings / SBI Protocol" Menu

Parameters	Settings	Explanation
SBI function	Manual without stability	If a print command is given, e.g., via the [print] button: The weight value is printed.
	Manual with stability*	If a print command is given, e.g., via the [print] button: The weight value not is printed until the device is stable.
	Auto without stability	Prints the weight value automatically without device stability.
	Auto without stability	Prints the weight value automatically only when the device is stable.
	Print after weight change	Prints after a threshold for device stability has been exceeded and the weight has previously been reduced to less than half of the threshold.
Manual print format	Value w/o identifier	Prints the weight value without labeling, e.g., "Net" or "G".
	Value*	Prints the weight value.
	Date, Value	Prints the weight value and a time stamp.
	Value (N, T, G#)	Prints a weight value block (net, tare, calculated gross).
	Date, Value (N, T, G#)	Prints a time stamp and a weight value block (net, tare, calculated gross value).

* Factory setting

4.11.11 Parameters in the "Settings / SBI Protocol / Automatic Print" Menu

Parameters	Settings	Explanation
Cancel auto printing	With Print key or ESC P	If the "PRINT" or "ESC P" key is pressed: Automatic printout is canceled.
	Off	Automatic printout **cannot** be canceled.
Auto print interval	Standard	Model-specific output rate for weight determination < 1 s.
	Every 2 display updates	Prints every 2nd value of standard.
	Interval time*	The interval time is used as the output rate.
Interval time		Defines the interval time.
Auto print format	Value w/o ID	Prints the weight value without labeling, e.g., "Net" or "G".
	Value*	Prints the weight value.
	Date, Value	Prints the weight value and a time stamp.

* Factory setting

4.11.12 Parameters in the “Settings / Connections / PC USB” Menu

Parameters	Settings	Explanation
Used device		Indicates which device is connected at the USB port.
Device / Protocol	SBI	Defines the interface protocol.
	xBPI	
	PC spreadsheet format	
	PC text format	
	Off	
Spreadsheet	Decimal separator	Defines the decimal separator character for the PC spreadsheet format, e.g., decimal point or decimal comma.
	Output Format	Defines the output format for the PC spreadsheet format, e.g., only numerical values or text and numerical values.

4.11.13 Parameters in the “Settings / Connections / USB” Menu

Parameters	Settings	Explanation
Used device		Indicates which device is connected at the USB port.
Device / Protocol	SBI	Only visible if an FTDI cable is connected. Defines the connected device or the interface protocol.
	xBPI	
	Printer YDP20	
	Printer YDP30	
	Second display	
	Barcode reader	
	Off	
	Print to USB memory	– Only visible if a USB storage medium is connected. – Activates or deactivates the print function on the USB storage medium.
	USB memory	Only visible if a USB storage medium is connected.
		– Only visible if a printer is connected. – Displays the connected printer. – Activates or deactivates the print function on the connected printer.
RS232 configuration		Configures the connected FTDI cable.

4.11.14 Parameters in the “Settings / Connections / RS232” Menu

Parameters	Settings	Explanation
Device / Protocol	SBI	Defines the connected device or the interface protocol.
	xBPI	
	Printer YDP20	
	Printer YDP30	
	Second display	
	Barcode reader	
	Off	
RS232 configuration	Baudrate	Configures the RS232 interface.
	Data bits	
	Parity	
	Handshake	
Foot switch function	Print	If a foot switch is connected: Sets the function that is triggered by pressing the foot switch.
	End application	
	Run application	
	Zero	
	Tare	
	Leveling	
	End of ISO / GLP	
	Off	

4.11.15 Parameters in the “Settings / User Settings” Menu

Parameters	Settings	Explanation
Display brightness	Bright	
	Medium	
	Eco mode*	Energy-saving mode. Reduces the brightness after 2 min. of inactivity. To reactivate the normal brightness: Press any button.
Acoustic signal	Max	Sets the device’s acoustic signal to “loud”.
	Medium*	Sets the device’s acoustic signal to “medium”.
	Low	Sets the device’s acoustic signal to “low”.
	Off	Turns the device’s acoustic signal off.
Display date / time	Off*	Does **not** display date/time in the “Weighing range display”.
	On	Displays date/time in the “Weighing range” display.
Display current user	Off*	Does **not** display the logged-in user in the “Weighing range display”.
	On	Displays the logged-in user in the “Weighing range display”.
Recall last value	Off*	Does **not** display the last weight value.
	On	Displays the last weight value.
Toggle unit	On*	Enables toggling between unit / accuracy via the [Toggle between weight units] button.
	Off	Deactivates toggling between unit / accuracy via the [Toggle between weight units] button.
Easy filter adaptation	On*	Activates the [Application filter] button.
	Off	Deactivates the [Application filter] button.
Application settings access	Full*	
	Read-only	

* Factory setting

4.11.16 Parameters in the "Settings / User Management" Menu

Parameters	Settings	Explanation
New user	Name	Defines the name of the new user. The user name must have a max. of 14 characters.
	Role	Defines a role for the new user.
Change user	Name	Changes the name of the user. The user name must have a max. of 14 characters.
	Role	Changes the role of the user.
		Changes the role of the user.
Delete user		Deletes the selected user.
Set user password		Defines a new password for the logged-in user. The user password must have a max. of 14 characters.
Set admin password		Defines the password for the administrator. The admin password must have a max. of 14 characters.

* Factory setting

4.11.17 Parameters in the "Settings / More Settings" Menu

Parameters	Settings	Explanation
Next maintenance		– Sets a date for the next maintenance. – When the date for the maintenance is reached: Triggers a message.
Reset settings	Yes, reset	Resets the settings to factory settings.
	No*	Does **not** reset the device to factory settings.
Enable service mode		For service only.

* Factory setting

4.11.18 Application Parameters

Parameters of the "Mixing" and "Components" Applications

Parameters	Settings	Explanation
Print component	On*	Activates printing of the individual weights of components.
	Off	Deactivates printing of the individual weights of components.

* Factory setting

Parameters of the "Statistics" Application

Parameters	Settings	Explanation
Print component	On*	Activates the component printout.
	Off	Deactivates the component printout.
Automatic tare	On	Activates automatic taring after the components are saved.
	Off*	Deactivates automatic taring after the components are saved.

* Factory setting

Parameters of the "Density" Application

Parameters	Settings	Explanation
Density of liquid		Defines the density of the buoyancy liquid, e.g., distilled water: – 0.9982 g/cm³ at 20°C – 0.9980 g/cm³ at 21°C – 0.9978 g/cm³ at 22°C
Accuracy	0-0,000	Defines the number of decimal places.

* Factory setting

Parameters of the "Percent" Application

Parameters	Settings	Explanation
Reference		Defines the reference percentage.
Accuracy	0-0,000	Defines the number of decimal places.

* Factory setting

Parameters of the "Conversion" Application

Parameters	Settings	Explanation
Factor		Defines a factor by which the weight value is multiplied.
Accuracy	0-0,000	Defines the number of decimal places.

* Factory setting

Parameters of the "Animal Weighing" Application

Parameters	Settings	Explanation
Measurements		Defines the number of measurements.

* Factory setting

Parameters	Settings	Explanation
Instability		Sets the intensity of the “Animal activity” to “very active”. Recommended for very active movements of the sample.
		Sets the intensity of the “Animal activity” to “medium”. Recommended for medium movements of the sample.*
		Sets the intensity of the “Animal activity” to “calm”. Recommended for minor movements of the sample.
Start	Automatic	Sets the trigger to start the “Animal weighing” application to “automatic”.
	Manual*	The “Animal weighing” application must be manually selected in the start screen.

* Factory setting

Parameters of the “Checkweighing” Application

Parameters	Settings	Explanation
Min		Defines the lower limit (minimum).
Max		Defines the upper limit (maximum).

* Factory setting

Parameters of the “Peak hold” Application

Parameters	Settings	Explanation
Apply	At stability*	Peak holds are applied when there is stability.
	Without stability	Peak holds are applied without stability.

* Factory setting

Parameters of the “Counting” Application

Parameters	Settings	Explanation
Reference		Defines the number of reference pieces.
Accuracy	Normal*	
	10-fold	
Optimize	Automatic*	Activates the automatic reference sample updating. The average piece weight is recalculated every time the reference sample is updated automatically. The basis for the calculation is increased every time a new sample is placed. This increases the counting accuracy of the reference and with it the result.
	Off	Deactivates automatic reference sample updating.

* Factory setting

Parameters of the "Pipette Test" Application

Parameters	Settings	Explanation
Print component	On*	Activates the component printout.
	Off	Deactivates the component printout.
Apply	Automatic	Automatically saves the weight value.
	Manual*	Saves the weight value after manual confirmation.

* Factory setting

4.11.19 Unit Toggling Parameters "Unit / Accuracy"

Parameters	Settings	Explanation
Unit	g*, kg, ct, lb,oz, ozt, tlh, tlt, GN, dwt, mg, /lb, tlc, mom, Kt, tol, bat, MS, N	Defines the unit of the weight value.
Accuracy	All digits on	Shows all available decimal places.
	Last digit off	Does **not** show the last available decimal place.

* Factory setting

4.12 User Management

4.12.1 User Profiles

In the factory, 3 user profiles are defined for the device: Administrator, Supervisor, and Operator. The user profiles are assigned rights for operating the device. If user profiles are assigned: A user profile must be selected after switching on the device. Different setting options and functions are displayed in the main menu depending on the user profile.

Setting options / functions	Administrator	Supervisor	Operator
Selecting or changing an application	x	x	-
Carrying out an application, e.g., statistics	x	x	x
Changing settings			
Language	x	x	x
Date and time	x	x (read-only)	-
Device info	x	x	x
Cal.-/adj. settings	x	x (read-only)	-
Weighing	x	x (read-only)	-
Printout	x	x (read-only)	-
SBI protocol	x	x (read-only)	-
Connections	x	x (read-only)	-
User settings	x	x	-
User management	x	x (set user password only)	x (set user password only)
More settings	x	x (read-only)	-
Performing leveling	x	x	x
Carrying out calibration and adjustment	x	x	x

5 Installation

5.1 Scope of Delivery

Item	Quantity
Device	1
Weighing pan	1
Frame draft shield	1
Power supply unit with country-specific AC adapters	1
Shock absorber	4
Operating Instructions	1

5.2 Selecting an Installation Site

Procedure

▶ Make sure that the following conditions are met at the installation site:

Condition	Characteristics
Ambient conditions	Suitability tested (see Chapter 14.1, page 47 for ambient conditions)
Setup surface	– Stable, even surface with little vibration – Sufficient space for the device (for space requirements, see Chapter "14.10 Device Dimensions", page 50) – Sufficient load-bearing capacity for the device and peripheral devices (see Chapter "14.12 Metrological Data", page 51 for device weight)

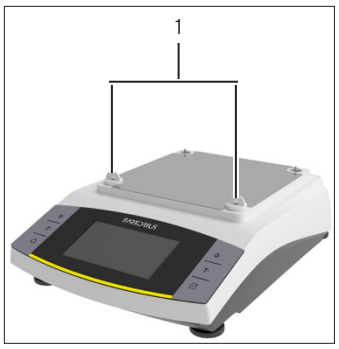
5.3 Unpacking the Device

Procedure

▶ Unpack the device.
▶ Install the device at the intended installation site.
▶ We recommend keeping the original packaging to return the device securely and appropriately, e.g. for repairs.

5.4 Removing the Transport Lock

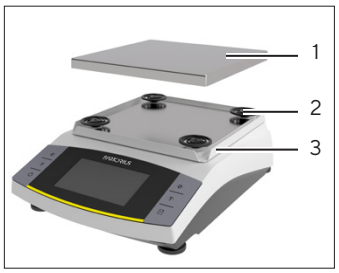
Procedure



▶ Remove the transport locks (1) and retain them for later use.

5.5 Mounting the Device

Procedure



▶ Place the frame draft shield (3) on the balance.
▶ Attach the four shock absorbers (2).
▶ Place the weighing pan (1) on top.

5.6 Acclimatizing

When a cold device is brought into a warmer area: The temperature difference can lead to condensation of humidity in the device (moisture formation). Moisture in the device can lead to malfunctions.

Procedure

▶ Allow the device to acclimatize for approx. 2 hours at the installation site. Ensure that the device is disconnected from the power supply during that time.

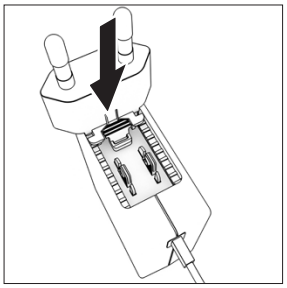
6 Getting Started

6.1 Installing the Power Supply Unit

6.1.1 Assembling the Power Supply Unit

Item number on packaging	**Power supply unit YEPS01-15VOW with connection cable and country-specific power plug adapters (packed in PE bag with printed country identification, e.g. EU)**
YEPS01-PS8	USA and Japan (US+JP), Europe and Russia (EU+RU), Great Britain (UK), India (IN), South Africa (ZA), Australia (AU), China (CN)
YEPS01-PS9	Argentina (AR), Brazil (BR), Korea (KR)
YEPS01-PS10	China (CN)

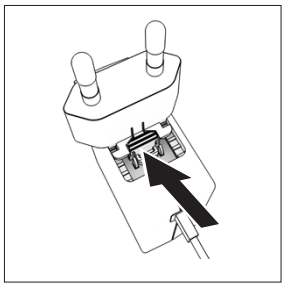
Procedure



- ▶ Select the country-specific power plug adapter. The power plug adapter must be suitable for use with the wall outlet at the installation site.
- ▶ Insert the power plug adapter into the power supply unit. The grooved button must be facing upwards.
- ▶ Push the power plug adapter as far as you can until it clicks into place.
- ▶ Check whether the power plug adapter is securely locked in place by pulling it gently.
- ▷ If the power plug adapter does **not** move: It is locked in place.

6.1.2 Dismantling the Power Plug Adapter

Procedure



- ▶ Press the grooved button from above and pull back on the power plug adapter.
- ▶ Push the power plug adapter out of the power supply unit and remove it.

6.2 Connecting the Power Supply

Procedure

- ▶ ⚠ **WARNING** Severe injuries caused by using defective power supply cables! Check the power supply cable for damage, e.g., cracks in the insulation.
  - ▶ If required: Contact Sartorius Service.
- ▶ Check whether the country-specific power plug matches the power connections at the installation site.
  - ▶ If required: Replace the country-specific power plug adapter.
- ▶ **NOTICE** Damage to the device due to excessive input voltage! Check whether the voltage specifications on the manufacturer's ID label match those of the power supply at the installation site.
  - ▶ If the input voltage is too high: **Do not** connect the device to the power supply.
  - ▶ Contact Sartorius Service.
- ▶ Connect the plug to the "Power Supply" connection.
- ▶ Connect the mains plug to the wall outlet (mains voltage) at the installation site.

7 System Settings

7.1 Performing System Settings

Default settings can be adjusted for the device and the applications in order to align with the ambient conditions and individual operating requirements. You can change the settings at any time.

The following settings are necessary to operate the device together with connected components:

- Set up the communication of the connected devices
- Set up additional components

When using the device for the first time and after resetting the device settings, the installation assistant starts. This assists with the following settings:

- Set the menu language
- Set the date and time

Procedure

- ▶ Press the [Main menu] button.
- ▶ To adjust settings: Open the desired menu.
- ▶ Select and confirm the desired parameter (parameters, see Chapter "4.10 "Main Menu" Menu Structure", page 17).
- ▶ Exit the menu.

7.2 Setting the Calibration and Adjustment

7.2.1 Switching the isoCAL Function On or Off (Only Model I- x)

When using the isoCAL function, the device performs an automatic time- and temperature-dependent internal calibration and adjustment.

Depending on the device model, other temperature ranges may apply for ensuring metrological data when the isoCAL function is switched off (see Chapter "14.1 Ambient Conditions", page 47).

M If this relates to a conformity-assessed device in legal metrology: In some cases it is **not** possible to switch off the isoCAL function.

Procedure

- ▶ Open the main menu.
- ▶ Open the "Settings" / "Cal.-/adj. settings" / "isoCAL" menu.
- ▶ To set the automatic start of the isoCAL function: Select "Automatic" setting.
- ▶ To set the manual start of the isoCAL function: Select the "Info, manual start" setting.
- ▶ To switch off the isoCAL function: Select the "OFF" setting.

7.3 Editing User Management

7.3.1 Setting and Changing Admin Password

Requirements

The "Administrator" is logged into the device.

Procedure

- ▶ Open the "Settings" / "User management" / "Set admin password" menu.
- ▶ Press the [...] button.
- ▷ The input screen for the admin password is displayed.
- ▶ Enter the desired password in the input field and confirm with the [Confirm] button.
- ▷ The input screen for the user password is displayed again.
- ▶ Enter the password in the input field a second time and confirm with the [Confirm] button.
- ▶ Press the [Confirm] button.

7.3.2 Creating User Profiles

User profiles can be created to prevent unauthorized personnel from making changes to the system settings of the balance. User profiles can only be created by the administrator.

Requirements

The “Administrator” is logged into the device.

Procedure

- ▶ Open the “Settings” / “User management” / “New user” menu.
- ▶ To assign a user name: Press the [...] button in the “Name” column.
- ▷ The input screen for the user name is displayed.
- ▶ Enter the desired user name in the input field and confirm with the [Confirm] button.
- ▶ To assign a role for the created user: Press the [Operator] button or the [Supervisor] button in the “Role” column.
- ▶ Confirm the inputs with the [Confirm] button.

7.3.3 Modifying Users

Requirements

The “Administrator” is logged into the device.

Procedure

- ▶ Open the “Settings” / “User management” / “Modify user” menu.
- ▶ To modify a user: Click on the desired user name and confirm the selection with the [Confirm] button.
- ▶ To modify the user name: Press the [...] button in the “Name” column.
- ▷ The input screen for the user name is displayed.
- ▶ Enter the desired user name in the input field and confirm with the [Confirm] button.
- ▶ To assign a new role for the created user: Press the [Operator] button or the [Supervisor] button in the “Role” column.
- ▶ Confirm the inputs with the [Confirm] button.

7.3.4 Deleting Users

Requirements

The “Administrator” is logged into the device.

Procedure

- ▶ Open the “Settings” / “User management” / “Delete user” menu.
- ▶ Click on the desired user and confirm the selection with the [Confirm] button.

7.3.5 Assigning and Changing User Password

Requirements

The user is logged into his/her own user profile on the device.

Procedure

- ▶ Open the “Settings” / “User management” / “Set user password” menu.
- ▶ Press the [...] button.
- ▷ The input screen for the password is displayed.
- ▶ Assign a password and confirm with the [Confirm] button.
- ▷ The input screen for the password is displayed again.
- ▶ Enter the password a second time and confirm with the [Confirm] button.

8 Operation

8.1 Switching the Device On/Off (Standby)

Requirements

The device is connected to the power supply.

Procedure

- ▶ **NOTICE** Pointed or sharp-edged objects may damage the operating display! Only touch the operating display with your fingertips.
- ▶ To switch the device on: Press the [On/Off] button.
- ▶ To switch the device to standby mode: Press and hold the [On/Off] button.

8.2 Waiting for the Warm-up Time

In order to provide accurate weighing results, the device must have reached the necessary operating temperature. The operating temperature is reached after the warm-up time. The warm-up time starts when the device is switched on.

Procedure

- ▶ Switch on the device.
- ▶ Wait until the operating temperature is reached (for warm-up time, see Chapter "14.8 Warm-up Time", page 49).

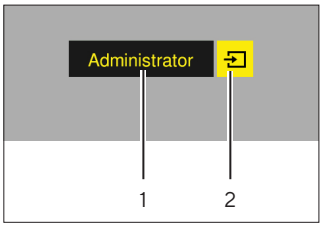
M The warm-up time must be observed for a conformity-assessed device, otherwise the weight values cannot be used.

8.3 User Login

If user profiles are created: A user login is required every time the device is switched on.

Procedure

- ▶ Switch on the device.



- ▶ Press the user profile selection (1).
- ▶ Select a user profile, e.g., Administrator.
- ▶ Press the [Apply] button (2).
- ▷ If a password is assigned: The input screen for the password opens.
- ▶ Enter the password and confirm with the [Confirm] button.
- ▶ To log in a different user: Press the [On/Off] button.
  - ▷ The device is in standby mode.
  - ▶ Press the [On/Off] button.
  - ▷ The device is switched on.
  - ▷ User Management is displayed.
  - ▶ Log in a new user.

8.4 Leveling the Device with an Electronic Level Indicator

Unevenness at the installation site of the device may result in incorrect weighing results. Leveling the balance compensates for unevenness at the installation site by twisting the front leveling feet of the balance.

Procedure

- ▶ Follow the instructions of the Leveling Wizard.

8.4.1 Level Indicator Test

The level indicator test is used to check the movement of the level indicator. The level indicator must be positioned at three different places during the level indicator test. The level indicator is positioned by rotating the front leveling feet.

Procedure

- ▶ Open the main menu.
- ▶ Press the "Leveling" button
- ▶ Press "Level test".
- ▶ Follow the Level Indicator Wizard's instructions.

8.5 Overview of Calibration and Adjustment

During calibration, a calibration weight is used to determine the deviation of the displayed value from the actual value. The subsequent adjustment eliminates this deviation. We recommend regular calibration and adjustment:

- Daily, every time the device is switched on
- After every leveling
- After changing the ambient conditions (temperature, humidity, or air pressure)
- After setting the device up at a new installation site

8.5.1 Calibrating and Adjusting Device with isoCAL Function (Only Model I-1x)

Triggers for the automatic start of the isoCAL function are:

- The ambient temperature has changed since the last adjustment process.
- The interval time has been exceeded.
- If this relates to a conformity-assessed model: The device has been disconnected from the power supply since the last adjustment.

Requirements

- The automatic or manual start of the isoCal function is set in the menu (see Chapter "7.2.1 Switching the isoCAL Function On or Off (Only Model I- x)", page 37).
- The device is **not** in the main menu.
- The load on the weighing pan remains unchanged for 2 minutes.
- The load on the weighing pan amounts to no more than 2% of the maximum load.
- The device does **not** register an input for 2 minutes.

Procedure

▷ If the automatic start of the isoCAL function is triggered: The isoCAL function automatically starts calibration and adjustment.
▶ If the manual start of the isoCAL function is triggered: The [isoCAL] button is highlighted orange. Press the [isoCAL] button.
▷ Internal calibration and adjustment are carried out.
▷ The report is displayed.

8.5.2 Performing Internal Calibration and Adjustment

Procedure

▶ Open the main menu.
▶ Press the [CAL] button and select the "CAL-Intern" setting.
▷ Internal calibration and adjustment are carried out.
▷ The report is displayed.

8.5.3 Performing External Calibration and Adjustment

Procedure

▶ Open the main menu.
▶ Press the [CAL] button and select the "CAL-Extern" setting.
▶ Follow the Calibration Wizard's instructions.
▷ External calibration and adjustment are carried out.
▷ The report is displayed.

8.6 Setting or Changing an Application

Procedure

▶ Select an application in the main menu. To do so, press a button, e.g., [Statistics].
▶ To exit the main menu: Press the [Back] button.
▶ The application is active.

8.7 Running Applications (Examples)

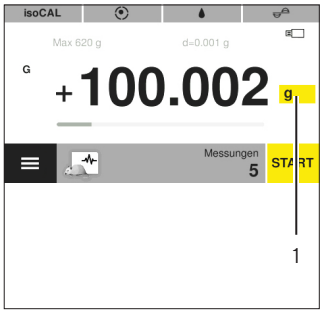
8.7.1 Running the "Toggle Between Weight Units" Application

The "Toggle between weight units" application enables the user to switch between the different units and adjust the decimal place settings during the weighing process.

Requirements

- The "Toggle between weight units" function is activated in the main menu.
- The weight value is valid.

Procedure



- ▶ Press the [Toggle between weight units] button (1).
- ▶ Set the unit and the accuracy.
- ▶ Confirm with the [Confirm] button.

8.7.2 Running the “Statistics” Application

The following values are saved and analyzed:

- Number of components
- Mean value
- Standard deviation
- Variation coefficient sum of all values
- Lowest value (minimum)
- Highest value (maximum)
- Spread: Difference between maximum and minimum

Requirements

- A printer or a PC is connected and configured.
- The “Statistics” application is selected.

Procedure

- ▶ Place a sample on the weighing pan.
- ▶ To save the weight value: Press the [Apply] button.
- ▷ The position of the saved value is displayed, e.g., “Component 1”.
- ▷ The recording of the statistics starts.
- ▶ Remove the sample being weighed.
- ▶ To save the next value: Place a new sample on the weighing pan and press the [Apply] button.
- ▶ To display the statistical analysis: Press the [Report] button.
- ▶ To print the statistical analysis: Press the [Print] button.
- ▶ To exit the application and delete the saved values: Press the [End] button.

8.7.3 Running the SQmin Minimum Initial Weight Application

The SQmin application compares the current weight value with a defined minimum initial weight. The defined minimum initial weight is defined in a quality assurance system, for example. This ensures that the weight values are above the defined minimum initial weights and thus meet the requirements of the United States Pharmacopeia (USP)

M SQmin is not the same as the minimum load “Min” in legal metrology.

Requirements

- The SQmin application must only be set up and activated by Sartorius Service.
- The “SQmin” application is activated.

Procedure

- ▶ Place a sample on the weighing pan.
- ▷ If a red SQmin value is displayed: The weight value is less than the defined minimum initial weight. The weight value is displayed in gray. The weight value **cannot** be saved and **cannot** be printed out in applications (depending on the setting in the “Safety level” menu).

8.8 Printing Weight Result With ID

Identifiers, e.g., device ID, batch ID, and sample ID, can be assigned to the device, the sample, and to a batch. The ID numbers are exported during ISO / GLP printout.

Requirements

- The ISO / GLP printout is activated in the “Settings” / “Printout” / “Manual print” / “ISO / GLP printout” menu.
- The device ID is set in the “Settings” / “Printout” / “IDs” / “Set device ID” menu.
- A printer or a PC is connected and configured.

Procedure

- ▶ Carry out weighing.
- ▶ Press the [Start GLP] button.
- ▶ If the “Batch ID” function is activated: Enter a batch ID.
- ▶ If the “Sample ID” function is activated: Enter a sample ID.
- ▷ The GLP header is printed with the device ID, the batch ID, the sample ID, and the current weight value.
- ▶ To exit the GLP printout: Press the [Exit GLP] button.
- ▷ The GLP footer is printed.

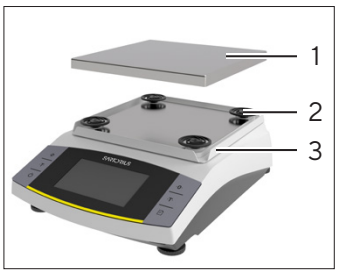
9 Cleaning and Maintenance

9.1 Detaching the Frame Draft Shield and Weighing Pan

Requirements

The device is disconnected from the power supply.

Procedure



- ▶ Remove the weighing pan (1), the four shock absorbers (2), and the frame draft shield (3).

9.2 Cleaning the Device

Procedure

- ▶ Disconnect the device from the power supply.
- ▶ Only use suitable cleaning agents and cleaning procedures and observe the product information for the cleaning agent used (for cleaning agent, see Chapter “14.7 Cleaning Agent”, page 49).
- ▶ Remove dust and powdery sample residue with a brush or hand-held vacuum cleaner.
- ▶ Wipe the device and the associated components with a slightly damp cloth. Use a mild soapy solution or a suitable cleaning agent for more severe contamination.

9.3 Attaching the Frame Draft Shield and Weighing Pan

Procedure

- ▶ Put the frame draft shield, the four shock absorbers, and the weighing pan into place.
- ▶ Connect the device to the power supply (see Chapter 6.2, page 36).

9.4 Maintenance Schedule

Interval	Component	Action
Regularly; depending on the operating conditions	Device	Perform a functional test of the device. Contact Sartorius Service for this.

9.5 Software Update

For a software update, contact Sartorius Service.

10 Malfunctions

10.1 Warning Messages

Warning message	Fault	Cause	Remedy	Chapter, page
APP.ERR.	The device has measured an invalid weight value.	The applied weight is too low.	Increase the applied weight to more than the minimum load.	
		The weight value is negative.		
		No sample has been placed on the balance.	Place the sample on the balance.	
DIS.ERR.	The value to be output **cannot** be shown in the operating display.	The data to be displayed is **not** compatible with the set display format.	Adjust the display settings, e.g., resolution, unit, decimal places.	
HIGH or ERR 55	The device is overloaded.	The device's maximum weighing capacity has been exceeded.	Reduce the applied weight to below the device's maximum weighing capacity.	
LOW or ERR 54	The modulation of the weighing converter inside the device is too low.	**No** weighing pan has been placed on the balance.	Insert the weighing pan into the device and switch the device off and on again.	
		A previously forgotten weight was removed after starting the device.		
		An error exists in the weighing system or in the device electronics.	Contact Sartorius Service.	
COMM.ERR.	The device is **not** receiving any weight values.	**No** communication exists between the control unit and the weigh cell.	Wait until the control unit restores the communication with the weigh cell.	
			If the problem occurs again: Contact Sartorius Service.	
PRT.ERR.	The [Print] button is locked.	The data interface for print output is set to xBPI mode.	Reset the menu to the factory settings.	
			If the problem occurs again: Contact Sartorius Service.	
SYS.ERR.	The system data is faulty.	A memory error exists in the control unit.	Switch the device off and on again.	8.1, 39
			If the problem occurs again: Contact Sartorius Service.	

Warning message	Fault	Cause	Remedy	Chapter, page
ERR 10	Taring is **not** possible.	The device **cannot** be manually tared because an application program has the tare memory reserved.	To release the tare memory: Exit the application program with the [End] button.	
ERR 11	The weight value **cannot** be saved in the tare memory.	The weight value is negative or "zero".	Check the sample being weighed. Zero the device before placing the sample on the balance.	
Low voltage of battery of the internal clock module: The date and time may be incorrect.		The battery is nearly empty.	Contact Sartorius Service.	
Calibration canceled	The device **cannot** be adjusted when starting the calibration function due to a zero point error or an absence of leveling (conformity-assessed models).	The device was **not** zeroed before calibration.	Zero the device. Check the preload and set if necessary.	
		The device is loaded.	Remove the sample from the weighing pan.	
		The balance drifts too far.	Allow to warm up. Re-align the device.	
		The internal motor weight unit is defective.	Contact Sartorius Service.	
		Conformity-assessed models: The device is not leveled.		
The balance needs to be adjusted!		The device needs to be calibrated and adjusted.	Calibrate and adjust the device.	7.2, 37
Remaining time in minutes: xx		The device is in the warm-up phase and has **not** yet reached its operating temperature. xx = remaining time in minutes	Comply with the warm-up time after switching the device on.	14.8, 49
Weight value is invalid		The displayed value is invalid.	Zero the device.	
The balance needs to be leveled!		The device is not leveled.	Level the device.	8.4, 39

10.2 Troubleshooting

Fault	Cause	Remedy	Chapter, page
The operating display is blank.	The device is disconnected.	Check the connection to the power supply.	
	The power supply unit is **not** connected.	Connect the power supply cable to the power supply.	
The displayed weight value changes constantly.	The installation site is unstable.	Adjust the parameter for the ambient temperatures.	
		Change the installation site.	
	A foreign object is positioned between the weighing pan and the housing.	Remove the foreign object.	
The weight readout displayed by the device is obviously wrong.	The device has **not** been calibrated and adjusted.	Calibrate and adjust the device.	7.2, 37
	The device was **not** tared before weighing.	Tare the device.	
For a conformity-assessed device: The [**Invalid** weight value] display appears.	The cause of this fault is displayed after pressing the [**No** valid weight value] button.		

11 Decommissioning

11.1 Decommissioning the Device

Procedure

- ▶ Turn the device off.
- ▶ Disconnect the device from the power supply.
- ▶ Disconnect the device from all connected devices and all accessories, e.g. printer.
- ▶ Clean the device (see Chapter 9.2, page 42).

12 Storage and Shipping

12.1 Storage

Procedure

- ▶ Turn the device off.
- ▶ Disconnect the device from the power supply.
- ▶ Disconnect the device from all connected devices, e.g. printer.
- ▶ Store the device according to the ambient conditions (see Chapter 14.1, page 47).

12.2 Returning the Device and Parts

Defective devices or parts can be sent back to Sartorius. Returned devices must be clean, decontaminated, and properly packed.

Transport damage as well as measures for subsequent cleaning and disinfection of the device or parts by Sartorius shall be charged to sender.

Devices contaminated with hazardous materials, e.g. harmful biological or chemical substances, will **not** be accepted for repair or disposal. The devices must be decontaminated before shipping (for decontamination, see Chapter "13.1 Decontaminating the Device", page 46).

Procedure

- ▶ Turn the device off.
- ▶ Disconnect the device from the power supply.
- ▶ Contact Sartorius Service for instructions on how to return devices or parts (please refer to www.sartorius.com).
- ▶ Pack the device and its parts properly for return, e.g. in their original packaging.

13 Disposal

13.1 Decontaminating the Device

The device does **not** contain any hazardous materials that necessitate special disposal measures. If the device has come into contact with hazardous substances: Steps must be taken to ensure proper decontamination and declaration.

Procedure

- ▶ If the device has come into contact with hazardous substances: Decontaminate the device. The operator of the device is responsible for adhering to local government regulations on the proper decontamination and declaration for transport and disposal.

13.2 Disposing of Device and Parts

The device and the device accessories must be disposed of properly by disposal facilities.

A lithium cell battery, type CR2032, is installed inside the device. Batteries must be disposed of properly by disposal facilities.

The packaging is made of environmentally friendly materials that can be used as secondary raw materials.

Requirements

The device has been decontaminated.

Procedure

- ▶ Dispose of the device. Follow the disposal instructions on our website (www.sartorius.com).
- ▶ Inform the disposal facility that there is a lithium cell battery, type CR2032, installed inside the device.
- ▶ Dispose of the packaging in accordance with local government regulations.

14 Technical Data

14.1 Ambient Conditions

	Unit	Value
Installation site: For indoor use only, max. height above sea level	m	3000
Temperature		
In operation	°C	+5 – +40
To ensure the metrological data	°C	+10 – +30
Storage and transport	°C	-10 – +60
Relative humidity**		
At temperatures up to 31°C, **non**-condensing	%	15 – 80
At temperatures of 31°C to 40°C, decreasing linearly	%	> 50
No heat from heating systems or direct sunlight		
No electromagnetic fields		

* For conformity-assessed (verified) balances in accordance with EU requirements, refer to the information on the balance.

** For conformity-assessed (verified) balances in accordance with EU requirements, the legal regulations apply.

14.2 Contamination Type, Overvoltage Category, and Protection Class

	Unit	Value
Pollution level according to IEC 61010-1		2
Overvoltage category according to IEC 60664-1		I

14.3 Power Supply

Only by Sartorius power supply unit YEPS01-15V0W

14.3.1 Power Supply Unit

	Unit	Value
Type: Sartorius power supply unit YEPS01-15V0W		
Primary		
Voltage	V_{AC}	100 – 240 V (±10%)
Frequency	Hz	50 – 60
Current consumption, maximum	A	0.2
Secondary		
Voltage	V_{DC}	15
Current, maximum	A	0.53
Short-circuit protection		Electronic
Protection class according to IEC 60950-1		II
Pollution level according to IEC 61010-1		2
Overvoltage category according to IEC 60664-1		I
Other data: See label on the power supply unit		

14.4 Electromagnetic Compatibility

Interference resistance:
Suitable for use in industrial areas
Transient emissions:
Class B
Suitable for use in residential areas and areas that are connected to a low voltage network that also supplies residential buildings.

14.5 Backup Battery

	Unit	Value
Lithium battery, type CR2032		
Service life at room temperature, minimum	Years	10

14.6 Materials

Housing: Polybutylene terephthalate (PBT)
Control unit: Glass
Draft shield: Glass / polybutylene terephthalate (PBT)

14.7 Cleaning Agent

No corrosive or scouring components
No chlorine or chloride-containing components
No solvents
Suitable for the device materials

14.8 Warm-up Time

	Unit	Value
Device, approx.	h	2

14.9 Interfaces

14.9.1 Specifications for the USB-C Interface

Communication: USB host
Connectable devices: Sartorius printer, Sartorius second display, FTDI cable, or USB stick (max. 32 GB with FAT32 format)

14.9.2 Specifications for the PC-USB Interface

Communication: USB device
Connectable devices: PC

14.9.3 Specifications of the RS232 Interface

Type of interface: Serial interface

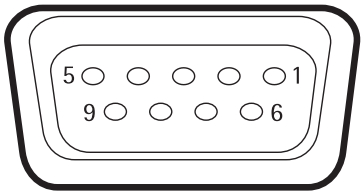
Interface operation: Full duplex

Level: RS232

Connection: D-sub connector, 9-pin

Maximum cable length: 10 m

Pin assignment



Pin 1: **Not** assigned
Pin 2: Data output (TxD)
Pin 3: Data input (RxD)
Pin 4: **Not** assigned
Pin 5: Internal ground
Pin 6: **Not** assigned
Pin 7: Clear to Send (CTS)
Pin 8: Request to Send (RTS)
Pin 9: Universal remote switch

14.10 Device Dimensions

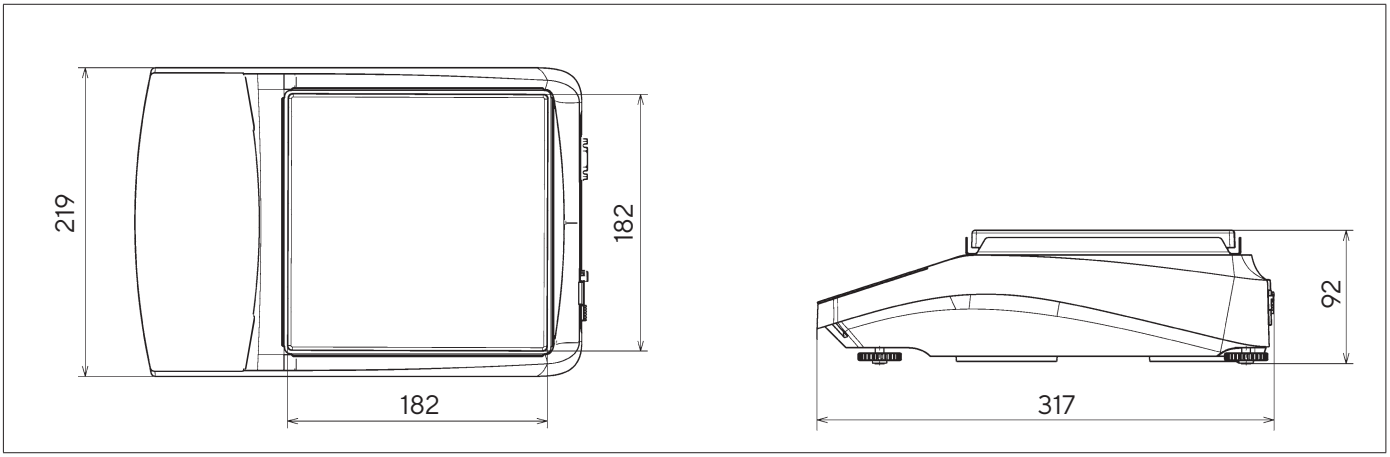


Fig. 8: Device dimensions in mm

14.11 Gross Weight

	Unit	Value
Devices with internal calibration and adjustment function (I-x)	kg	7.00
Devices without internal calibration and adjustment function	kg	5.10
Conformity-assessed devices without internal calibration and adjustment function	kg	5.40

14.12 Metrological Data

14.12.1 Models BCA6202 | BCA4202 | BCA3202

		BCA6202I-1x | BCA6202-1x	BCA4202I-1x | BCA4202-1x	BCA3202I-1x | BCA3202I-1x
	Unit	**Value**	**Value**	**Value**
Scale interval (d)	mg	10	10	10
Maximum capacity (Max)	g	6,200	4,200	3,200
Repeatability				
At 5%, typical value	mg	5	5	5
At approx. the maximum load, typical value	mg	10	10	10
Linearity deviation				
Limits	± mg	20	20	20
Typical value	± mg	6	6	6
Sensitivity drift between +10°C and +30°C	± ppm/K	2	2	2
Tare maximum capacity (subtractive)		<100% of maximum capacity		
isoCAL (only for I-1x models):				
Temperature change	K	2	2	2
Time interval	h	6	6	6
Only for models with approval:				
Accuracy class		II	II	II
Type		BC-AE	BC-AE	BC-AE
Verification scale interval (e)	mg	100	100	100
Minimum load (Min)	mg	500	500	500
Minimum initial weight according to USP (United States Pharmacopeia), Chap. 41				
Optimum minimum initial weight	g	8.2	8.2	8.2
Typical minimum initial weight	g	10	10	10
Typical measurement time	s	≤1.0	≤1.0	≤1.0
Typical stabilization time	s	≤0.9	≤0.9	≤0.9
Recommended calibration weight				
External calibrated test weight	g	5,000	2,000	2,000
Accuracy class in accordance with OIML R111-1		F1	F1	F1

14.12.2 Models BCA2202 | BCA1202 | BCA822

		BCA2202-1x (x = only S, SAR, SJP, SKR)	BCA2202I-1x | BCA 2202-1x (x = only CCN, OIN)	BCA1202-1x (x = only S, SAR, SJP, SKR)	BCA1202I-1x | BCA 1202-1x (x = only CCN, OIN)	BCA822-1x (x = only S, SAR, SJP, SKR)	BCA822I-1x | BCA 822-1x (x = only CCN, OIN)
	Unit	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**
Scale interval (d)	mg	10	10	10	10	10	10
Maximum capacity (Max)	g	2,200	2,200	1,200	1,200	820	820
Repeatability							
At 5%, typical value	mg	5	5	5	5	5	5
At approx. the maximum load, typical value	mg	10	10	10	10	10	10
Linearity deviation							
Limits	± mg	20	20	20	20	20	20
Typical value	± mg	6	6	6	6	6	6
Sensitivity drift between +10°C and +30°C	± ppm/K	3.5	2	3.5	2	3.5	2
Tare maximum capacity (subtractive)		<100% of maximum capacity					
isoCAL (only for I-1x models):							
Temperature change	K		2		2		2
Time interval	h		6		6		6
Only for models with approval:							
Accuracy class			II		II		II
Type			BC-AE		BC-AE		BC-AE
Verification scale interval (e)	mg		100		100		100
Minimum load (Min)	mg		500		500		500
Minimum initial weight according to USP (United States Pharmacopeia), Chap. 41							
Optimum minimum initial weight	g	8.2	8.2	8.2	8.2	8.2	8.2
Typical minimum initial weight	g	10	10	10	10	10	10
Typical measurement time	s	≤1.0	≤1.0	≤1.0	≤1.0	≤1.0	≤1.0
Typical stabilization time	s	≤0.9	≤0.9	≤0.9	≤0.9	≤0.9	≤0.9
Recommended calibration weight							
External calibrated test weight	g	2,000	2,000	1,000	1,000	500	500
Accuracy class in accordance with OIML R111-1		F1	F1	F1	F1	F2	F2

14.12.3 Models BCA5201 | BCA2201

		BCA5201-1x (x = only S, SAR, SJP, SKR)	BCA5201I-1x | BCA5201-1x (x = only CCN, OIN)	BCA2201-1x (x = only S, SAR, SJP, SKR)	BCA2201I-1x | BCA2201-1x (x = only CCN, OIN)
	Unit	**Value**	**Value**	**Value**	**Value**
Scale interval (d)	mg	100	100	100	100
Maximum capacity (Max)	g	5,200	5,200	2,200	2,200
Repeatability					
At 5%, typical value	mg	50	50	50	50
At approx. the maximum load, typical value	mg	100	50	100	50
Linearity deviation					
Limits	± mg	300	100	300	100
Typical value	± mg	100	60	100	60
Sensitivity drift between +10°C and +30°C	± ppm/K	7	2	7	2
Tare maximum capacity (subtractive)		<100% of maximum capacity			
isoCAL (only for I-1x models):					
Temperature change	K		2		2
Time interval	h		6		6
Only for models with approval:					
Accuracy class			II		II
Type			BC-AE		BC-AE
Verification scale interval (e)	mg		100		100
Minimum load (Min)	mg		5,000		5,000
Minimum initial weight according to USP (United States Pharmacopeia), Chap. 41					
Optimum minimum initial weight	g	82	82	82	82
Typical minimum initial weight	g	100	100	100	100
Typical measurement time	s	≤1.0	≤1.0	≤1.0	≤1.0
Typical stabilization time	s	≤0.9	≤0.9	≤0.9	≤0.9
Recommended calibration weight					
External calibrated test weight	g	5,000	5,000	2,000	2,000
Accuracy class in accordance with OIML R111-1		F2	F2	F2	F2

14.12.4 Models BCA12201 | BCA10201 | BCA8201

		BCA12201I-1x | BCA12201-1x	BCA10201I-1x | BCA10201-1x	BCA8201-1x	BCA8201I-1x
	Unit	**Value**	**Value**	**Value**	**Value**
Scale interval (d)	mg	100	100	100	100
Maximum capacity (Max)	g	12,200	10,200	8,200	8,200
Repeatability					
At 5%, typical value	mg	50	50	50	50
At approx. the maximum load, typical value	mg	100	100	100	100
Linearity deviation					
Limits	± mg	100	100	300	100
Typical value	± mg	60	60	100	60
Sensitivity drift between +10°C and +30°C	± ppm/K	4	4	7	4
Tare maximum capacity (subtractive)		<100% of maximum capacity			
isoCAL (only for I-1x models):					
Temperature change	K	2	2		2
Time interval	h	6	6		6
Only for models with approval:					
Accuracy class		II	II	II	II
Type		BC-AG	BC-AG	BC-AI	BC-AG
Verification scale interval (e)	mg	1,000	1,000	1,000	1,000
Minimum load (Min)	mg	5,000	5,000	5,000	5,000
Minimum initial weight according to USP (United States Pharmacopeia), Chap. 41					
Optimum minimum initial weight	g	82	82	82	82
Typical minimum initial weight	g	100	100	100	100
Typical measurement time	s	≤1.0	≤1.0	≤1.0	≤1.0
Typical stabilization time	s	≤0.9	≤0.9	≤0.9	≤0.9
Recommended calibration weight					
External calibrated test weight	g	10,000	10,000	5,000	5,000
Accuracy class in accordance with OIML R111-1		F2	F2	F2	F2

15 Accessories

15.1 Device Accessories

These tables contain an excerpt of the accessories that can be ordered. For information on other products, contact Sartorius.

Item	Quantity	Order number
Display protection film (set of 5)	1	YDC10
Dust cover	1	YDC30
In-use dust cover (set of 5)	1	YIC01
“Kensington Lock” anti-theft device	1	YKL01
Pedal button | foot switch	1	YFS03
Second display | remote display	1	YSD01
Below-balance weighing (**not** for models in legal metrology)		
Hook M5	1	69EA0039
Weighing table		
Made from wood with natural stone	1	YWT09
Made from natural stone, with vibration dampening	1	YWT03
Wall console made from natural stone	1	YWT04
USB memory stick	1	YMS-USB-C
Voltage converter cable (5 V to 15 V)	1	YCC-5V-15V

15.2 Printer and Accessories for Data Communication

These tables contain an excerpt of the accessories that can be ordered. For information on other products, contact Sartorius.

Item	Quantity	Order number
Thermal printer (USB-B)	1	YDP40
Thermal transfer printer (USB-B, RS232)	1	YDP30
Dot matrix printer (RS232)	1	YDP20-0CE
Data cable USB-C > USB-B, 1.5 m	1	YCC-USB-C-B
Data cable USB-C > USB-A, 1.5 m	1	YCC-USB-C-A
Data cable RS232 (9-pin) > USB-A, 1.5 m	1	YCC-D09M-USB-A
Data cable RS232 (9-pin) male > RS232 (9-pin) male, 1.5 m	1	YCC-D09MM
Data cable RS232 (9-pin) male > RS232 (9-pin) female, 1.5 m	1	YCC-D09MF
Y-adapter RS232 (9-pin) male > 2x RS232 (9-pin) female, 1.5 m	1	YCC-D09M-2D09F

15.3 External Calibration and Adjustment Weights

These tables contain an excerpt of the accessories that can be ordered. For information on other products, contact Sartorius.

BCA model	Weight	Accuracy class	Order number
6202	5,000 g	F1	YCW653-AC-02
4202 | 3202 | 2202	2,000 g	F1	YCW623-AC-02
1202	1,000 g	F1	YCW613-AC-02
822	500 g	F2	YCW554-AC-02
12201 |10201	10,000 g	F2	YCW714-AC-02
8201 | 5201	5,000 g	F2	YCW654-AC-02
2201	2,000 g	F2	YCW624-AC-02

16 Sartorius Service

Sartorius Service is available for queries regarding the device. For information about the service addresses, services provided or to contact a local representative, please visit the Sartorius website (www.sartorius.com).

When contacting Sartorius Service with questions about the system or in the event of malfunctions, be sure to have the device information, e.g., serial number, hardware, firmware, and configuration, to hand. Consult the information on the manufacturer's ID label and in the main menu under "Settings / Device Information".

17 Conformity Documents

The attached documents declare the conformity of the device with the designated directives or standards.

M The Declaration of Conformity supplied with the balance is for conformity-assessed (verified) devices for use in the EEA. Please keep it in a safe place.