Operating Instructions

Original Operating Instructions

Cubis®

MCE Models

Semi-microbalances | High-load Microbalances



1000112172

SARTORIUS

Contents

1 About These Instructions 7
1.1 Validity 7
1.2 Related Documents 7
1.3 Target Groups 7
1.4 Symbols Used 8
1.4.1 Warnings in Operation Descriptions 8
1.4.2 Other Symbols Used 8

2 Safety Instructions 9
2.1 Intended Use 9
2.1.1 Modifications to the Device 9
2.1.2 Repairs and Maintenance on the Device 10
2.2 Qualifications of Personnel 10
2.3 Functionality of the Device Parts 10
2.4 Safety Information on the Device 10
2.5 Electrical Equipment 11
2.5.1 Power Supply Unit and Power Supply Cable 11
2.5.2 Connection Point for Power Supply Unit and Power Supply Cable 11
2.6 Conduct in an Emergency 11
2.7 Accessories 11
2.8 Risk of Injury During Transporting 12
2.9 Glass Breakage 12
2.10 Trip Hazard From Connection Cable! 12

3 Device Description 13
3.1 Device Overview 13
3.2 Draft Shield 14
3.3 Components in the Weighing Compartment 15
3.4 Connections 16
3.4.1 Back of the Device 16
3.4.2 Rear Wall of Weighing Compartment 17
3.4.3 Operating Display 17
3.5 Protective Caps and Covers for Connections 18
3.6 Conformity-assessed Devices 19
3.7 Accessories 19
3.8 Below-balance Weighing 19

4 Operating Design 20
4.1 Operating Display in Weighing Mode 20
4.2 Operating Display in the Menu 21
4.3 Operating Display Buttons and Keys 21
4.4 Displays in the Operating Display 23
4.5 Licensable Device Functions 24
4.6 Navigating the Menus 25
4.7 Menu Structure 27
4.7.1 Menu Structure in the Main Menu 27
4.7.2 Menu Structure in the “Unit Change” Menu 29

4.8 Parameter List 30
4.8.1 Parameters in the “SETUP/BALANCE” Menu 30
4.8.2 Parameters in the “SETUP/GEN.SERV.” Menu 32
4.8.3 Parameters in the “DEVICE/USB.RS232” Menu 33
4.8.4 Parameters in the “DEVICE/PC-USB” Menu 34
4.8.5 Parameters in the “DEVICE/USB” Menu 34
4.8.6 Parameters in the “DEVICE/D.SHIELD” Menu 35
4.8.7 Parameters in the “DEVICE/IONIZER” Menu 35
4.8.8 Parameters in the “DEVICE/LEVELING” Menu 36
4.8.9 Parameters in the “DEVICE/MOTION.S.” Menu 36
4.8.10 Parameters in the “DEVICE/EXTRAS” Menu 37
4.8.11 Parameters in the “DATA.OUTP./COM.SBI” Menu 38
4.8.12 Parameters in the “DATA.OUTP./PRNT.PARA.” Menu 38
4.8.13 Parameters in the “DATA.OUTP./PC.DIRECT.” Menu 39
4.8.14 Parameters in the “APPLIC./WEIGH” Menu 40
4.8.15 Parameters in the “APPLIC./COUNT” Menu 40
4.8.16 Parameters in the “APPLIC./PERCENT” Menu 40
4.8.17 Parameters in the “APPLIC./NET-TOTL.” Menu 40
4.8.18 Parameters in the “APPLIC./TOTAL” Menu 41
4.8.19 Parameters in the “APPLIC./ANIMALW.” Menu 41
4.8.20 Parameters in the “APPLIC./CALC.” Menu 41
4.8.21 Parameters in the “APPLIC./DENSITY” Menu 42
4.8.22 Parameters in the “APPLIC./STATIST.” Menu 42
4.8.23 Parameters in the “INPUT” Menu 42
4.8.24 Parameters in the “LANGUAGE” Menu 43
4.8.25 Parameters in the “Unit Change” Menu 43

5 Installation 44
5.1 Scope of Delivery 44
5.2 Selecting an Installation Site 45
5.3 Unpacking 45
5.4 Attaching or Removing the Operating Display 45
5.5 Placing the Device on its Side and Installing 46
5.6 Inserting the Connection Cable for the Operating Display 46
5.7 Positioning the Weighing Pan and Associated Components 47
5.8 Installing the Draft Shield 47
5.9 Installing the Control Unit 48
5.10 Acclimatization 48

6 Getting Started 49
6.1 Attaching the Connection Cable for the Operating Display 49
6.2 Connecting the Power Supply Unit to the Device 49
6.3 Connecting the Power Supply 49
6.4 Connecting Accessories 50
6.5 Attaching Protective Caps and Covers 50

7 System Settings 51
7.1 Switching the Device On or Off 51
7.2 Performing System Settings 51
7.3 Entering the License Key 52
7.4 Switching Off the isoCAL Function 52
7.5 Activating, Deactivating or Configuring the Ionizer 52
7.6 Configuring Motorized Opening and Closing of the Draft Shield 53

8 Operation ... 54
8.1 Observing Warm-up Time ... 54
8.2 Manually Opening and Closing the Draft Shield ... 54
8.3 Opening and Closing the Motorized Draft Shield ... 54
8.3.1 Opening or Closing on the Operating Display ... 54
8.3.2 Opening or Closing via Proximity Sensors ... 55
8.3.3 Manually Opening or Closing a Motorized Draft Shield ... 55
8.4 Leveling the Device ... 55
8.5 Calibration, Adjustment or Linearization ... 56
8.5.1 Adjusting with the isoCAL Function ... 57
8.5.2 Internally Calibrating and Adjusting the Device ... 57
8.5.3 Externally Calibrating the Device (**Not** for Conformity-assessed Models) ... 59
8.6 Weighing ... 61
8.7 Printing Results ... 61
8.7.1 Printing the Calibration Results ... 61
8.7.2 Weighing Results with ID Marking ... 62
8.8 Starting the Ionization Process ... 62
8.9 Running Applications (Examples) ... 63
8.9.1 Executing the "Unit Change" Function ... 63
8.9.2 Running the "Statistics" Application ... 64

9 Cleaning and Maintenance ... 65
9.1 Preparing the Device for Cleaning ... 65
9.1.1 Dismantling the Draft Shield ... 65
9.1.2 Removing the Weighing Pan and Associated Components ... 66
9.2 Cleaning the Device ... 66
9.3 Maintenance Schedule ... 67
9.4 Re-starting the System ... 67
9.5 Performing a Software Update ... 68

10 Malfunctions ... 69
10.1 Status Messages ... 69
10.2 Warning Messages ... 69
10.3 Malfunctions on the Operating Display or During Weighing Processes ... 72
10.4 Faults with Conformity-assessed Devices ... 72

11 Decommissioning ... 73
11.1 Decommissioning the Device ... 73
11.2 Dismantling Device Parts ... 73
11.2.1 Dismantling Draft Shield and Components in the Weighing Compartment ... 73
11.2.2 Dismounting the Connection Cable ... 73

12 Transportation ... 74
12.1 Transporting the Device ... 74

13 Storage and Shipping ... 75
13.1 Storage ... 75
13.2 Returning the Device and Parts ... 75

14 Disposal ... 76
14.1 Disposing of the Device and Parts ... 76

15 Technical Data ... 77
15.1 Dimensions and Weights ... 77
15.2 Installation Conditions ... 77
15.3 Ambient Conditions ... 78
15.3.1 Protection Class ... 78
15.4 Storage Conditions ... 78
15.5 Electrical Data ... 79
15.5.1 Power Supply ... 79
15.5.2 Safety of Electrical Equipment ... 79
15.5.3 Electromagnetic Compatibility ... 79
15.5.4 Interfaces ... 80
15.6 Wait Times ... 80
15.7 Model-specific and Licensable Device Functions ... 80
15.8 Ionizer when Using Device in an Isolator with Protective Argon Atmosphere ... 80
15.9 Recommended Calibration Weight ... 81
15.9.1 Semi-microbalance ... 81
15.9.2 High-capacity Micro Balance ... 81
15.10 Conditions for isoCAL Function ... 82
15.11 Data Storage Device ... 82
15.12 Integrated Clock ... 82
15.13 Backup Battery ... 82
15.14 Materials ... 83
15.15 Cleaning Agents and Cleaning Procedures ... 84
15.15.1 Approved Cleaning Agents ... 84
15.15.2 Approved Cleaning Process ... 84
15.16 Metrological Data ... 85
15.16.1 Semi-microbalance ... 85
15.16.2 High-capacity Microbalance ... 86

16 Accessories and Spare Parts ... 87
16.1 Accessories ... 87
16.2 Spare Parts ... 88

17 Sartorius Service ... 89

18 Conformity Documents ... 89

19 Trademark Information ... 89

20 Index ... 92

1 About These Instructions

1.1 Validity

These instructions are part of the device; they must be read in full and stored. These instructions apply to the device in the following versions:

Device	Model
Cubis® Semi-microbalance	MCE225S-3 | MCE225P-3 | MCE125S-3
Cubis® High-capacity Microbalance	MCE66S-3 | MCE66P-3 | MCE36S-3 | MCE36P-3

1.2 Related Documents

- In addition to these instructions, please observe the following documents:
  - Instructions for the accessories used, e.g. printers or weighing pans
  - Optional: Additional information about cleaning the device (Best Cleaning Practices for Cubis® II Ultra-High Resolution Balances)

1.3 Target Groups

These instructions are addressed to the following target groups. The target groups must possess the specified knowledge.

Target Group	Knowledge and Qualifications
Operator	The operator is familiar with the device and the associated work processes. The operator understands the hazards which may arise when working with the device and knows how to prevent them.*

* If a person in the target group operates the software interface of the device, they are also the “user”.

1.4 Symbols Used

1.4.1 Warnings in Operation Descriptions

⚠ WARNING
Denotes a hazard that may result in death or serious 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 Used

▶	Required action: Describes activities that must be carried out. The activities in the sequence must be carried out in succession.
▷	Result: Describes the result of the activities carried out.
[ ]	Refers to operating and display elements. Indicates status, warning, and error messages.
M	Indicates information for legal metrology for conformity-assessed (verified) devices. Conformity-assessed devices are referred to as “verified” in these instructions.

Figures in These Instructions

Depending on the device configuration, the figures depicting the device and operating display may differ slightly from the supplied device. The variants shown in these instructions are examples.

2 Safety Instructions

2.1 Intended Use

The device is a high-resolution balance, which can be used in laboratories. The device was developed to accurately determine the mass of materials in liquid, paste, powder, or solid form.

Appropriate containers must be used for loading certain materials, e.g., when weighing chemicals.

The device can be operated as follows:

- In stand-alone operation
- Connected to a PC
- Integrated into a network

The device is intended solely for use in accordance with these instructions. Any further use beyond this is considered **improper** and may impair the protection supported by the device, e.g. protection against mechanical dangers.

Foreseeable Misuse

The following applications are **not** permitted: Operation under any atmosphere other than the normal atmosphere.

Operating Conditions for the Device

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

Do **not** use the device in a vacuum or negative pressure environment (maximum air pressure see Chapter “15.3 Ambient Conditions”, page 78).

Do **not** use physical measures to alter the as-delivered state of the device, and only connect approved accessories (see Chapter “16 Accessories and Spare Parts”, page 87).

Adhere to the maintenance and calibration intervals for the device (see Chapter “9.3 Maintenance Schedule”, page 67).

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: Persons may be put at risk. Device-specific documents and product approvals may lose their validity.

For queries regarding modifications to the device, contact Sartorius.

2.1.2 Repairs and Maintenance on the Device

Device repairs and maintenance may only be carried out by persons with specialized knowledge of the device. If the device is **not** repaired or maintained by a specialist: Persons may be put at risk. Device-specific documents and product approvals may lose their validity.

Sartorius recommends that any repair work, even that carried out after the end of the warranty period, 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 Qualifications of Personnel

Persons who do not possess adequate knowledge about how to use the device safely may injure themselves and other persons.

If a particular qualification is required for an activity: The target group will be specified. If **no** qualification is specified: The action can be performed by the "Operator" target group.

2.3 Functionality of the Device Parts

Non-functioning device parts, e.g., as a result of damage or wear, can cause malfunctions. There is a risk of injury to persons.

- If device parts are **not** functioning: Do **not** use the device.
- Comply with the maintenance intervals (intervals and maintenance tasks see Chapter "9.3 Maintenance Schedule", page 67).

2.4 Safety Information on the Device

Symbols, e.g., warnings and safety stickers, are safety information for handling the device. Missing or illegible safety information may result in this information **not** being observed. There is a risk of injury to persons.

- Do **not** conceal, remove, or modify the symbols.
- Replace the symbols if they become illegible.

2.5 Electrical Equipment

2.5.1 Power Supply Unit and Power Supply Cable

The use of an **unauthorized** power supply unit or power supply cable may cause life-threatening injuries as a result of electric shocks, for example.

- ▶ Only use the original power supply unit and power supply cable provided with the device.
- ▶ 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 cable.

2.5.2 Connection Point for Power Supply Unit and Power Supply Cable

If the connection point for the power supply unit and power supply cable is not suitable: People can become seriously injured, e.g., due to electric shocks.

- ▶ Protect the power supply unit and the power supply cable from liquids.
- ▶ Do **not** use a damaged power supply unit or power supply cable.

2.6 Conduct in an Emergency

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

- ▶ Disconnect the device from the power supply.
- ▶ Secure the device to prevent it from re-starting.

2.7 Accessories

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

- — Risk of injury to persons
- — Damage, malfunctions, or failure of the device

- ▶ Only use accessories that have been approved by Sartorius and are safe for use.

2.8 Risk of Injury During Transporting

If the device is **not** transported correctly: The device could fall and cause an injury, e.g. a foot injury. If the device is **not** placed down correctly, e.g., on a laboratory table: Fingers might be crushed.

- ▶ Disconnect the device from all connections at the installation site.
- ▶ Use both hands when transporting the device and setting it down. To do this, reach sideways under the device with both hands in the rear part of the device.
- ▶ Do **not** carry the device on the draft shield or the control unit.

2.9 Glass Breakage

Glass components can break if they fall or are handled incorrectly. Glass fragments can cause cuts.

- ▶ Do **not** use sharp or hard objects on the operating display.
- ▶ Do **not** allow items to fall onto the operating display.
- ▶ In the event of damage to the operating display or draft shield, do **not** use the device. Contact Sartorius Service.

2.10 Trip Hazard From Connection Cable!

If the device's connection cables, e.g. the power supply cable, are laid haphazardly: People may trip over the connection cables and injure themselves.

- ▶ Lay all connection cables in such a way, that trip hazards are avoided.

3 Device Description

3.1 Device Overview

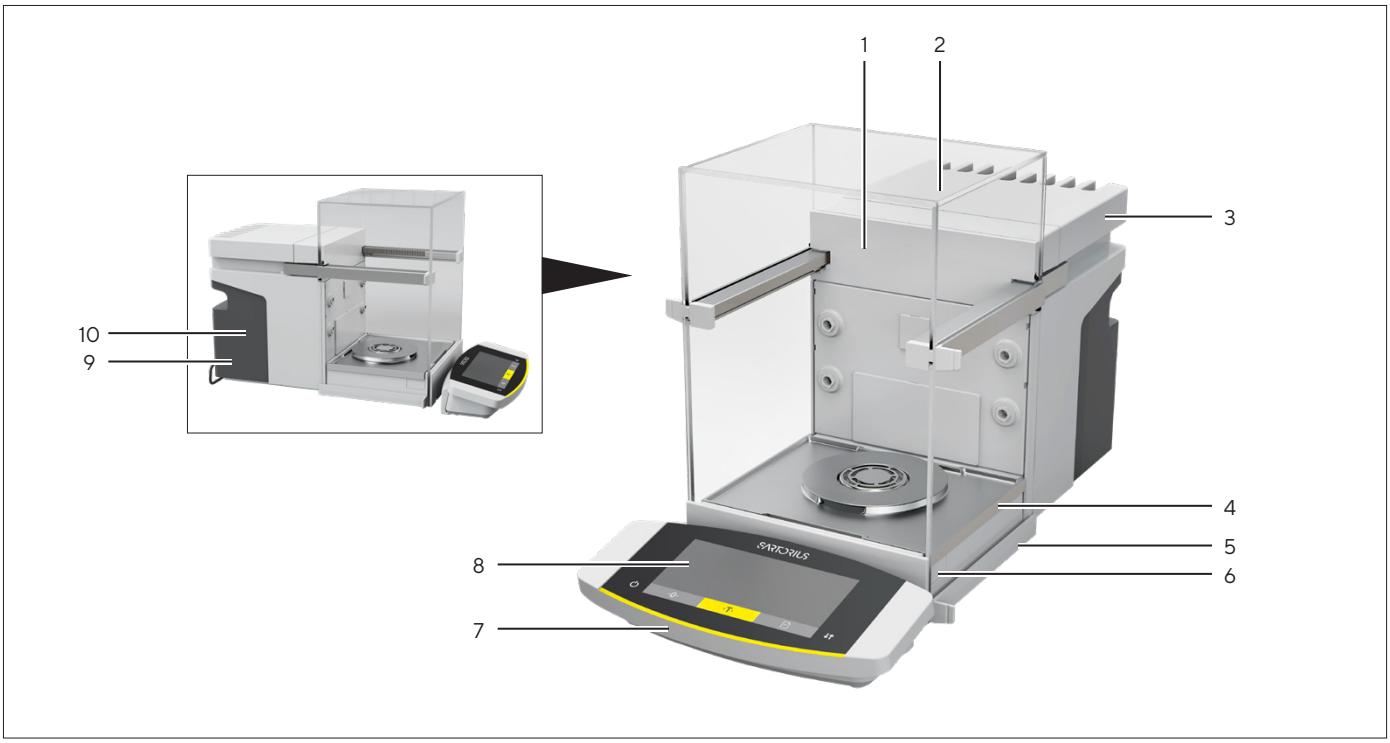


Fig. 1: Cubis® high-capacity micro balance, with motorized draft shield and 50 mm weighing pan (example)

Pos.	Name	Description
1	Weighing chamber	
2	Draft shield	
3	Cooling element	
4	Weighing module	Contained in the housing.
5	Leveling foot	Motorically adjustable. Located on the bottom of the device.
6	Proximity sensor	Only high-capacity microbalance: The proximity sensor is intended for contact-free opening or closing of the following components: – Doors of a motorized draft shield – If mounted in the device: Motorized Inner Draft Shield
7	Control unit	Removable.
8	Operating display	
9	Manufacturer's ID label	Contains additional information about the device (model-dependent).
10	Type plate	

3.2 Draft Shield

The draft shield can be opened motorically or manually, depending on the version of the device.

When opening the draft shield, the top and side doors slide backwards. The top and side doors can be opened together or independently.

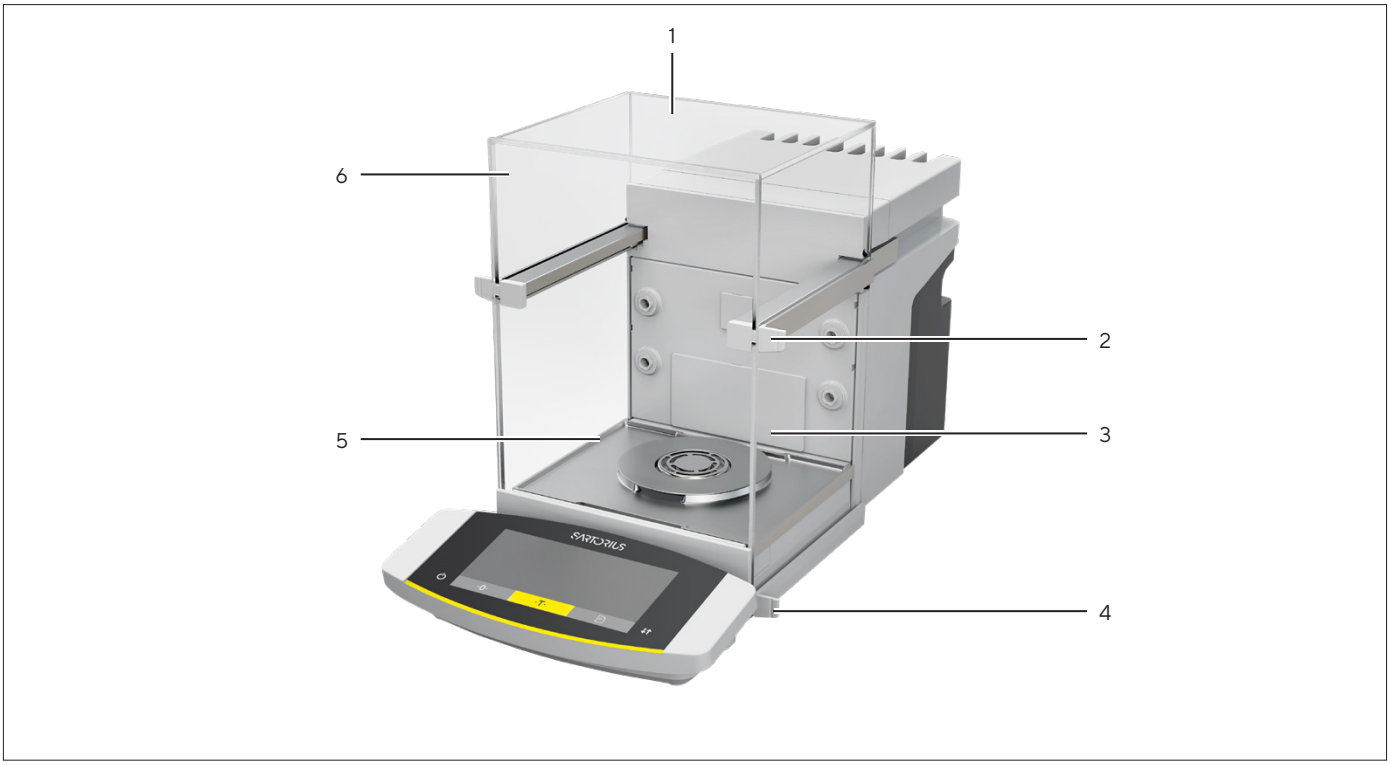


Fig. 2: Draft shield, motorized, all doors closed (example)

Pos.	Name	Description
1	Rear panel	Is installed on delivery.
2	Top door handle	Opens the top door.
3	Side door	
4	Bottom door handle	Opens the side door.
5	Front panel	
6	Top door	Consists of one top panel and two side panels.

3.3 Components in the Weighing Compartment

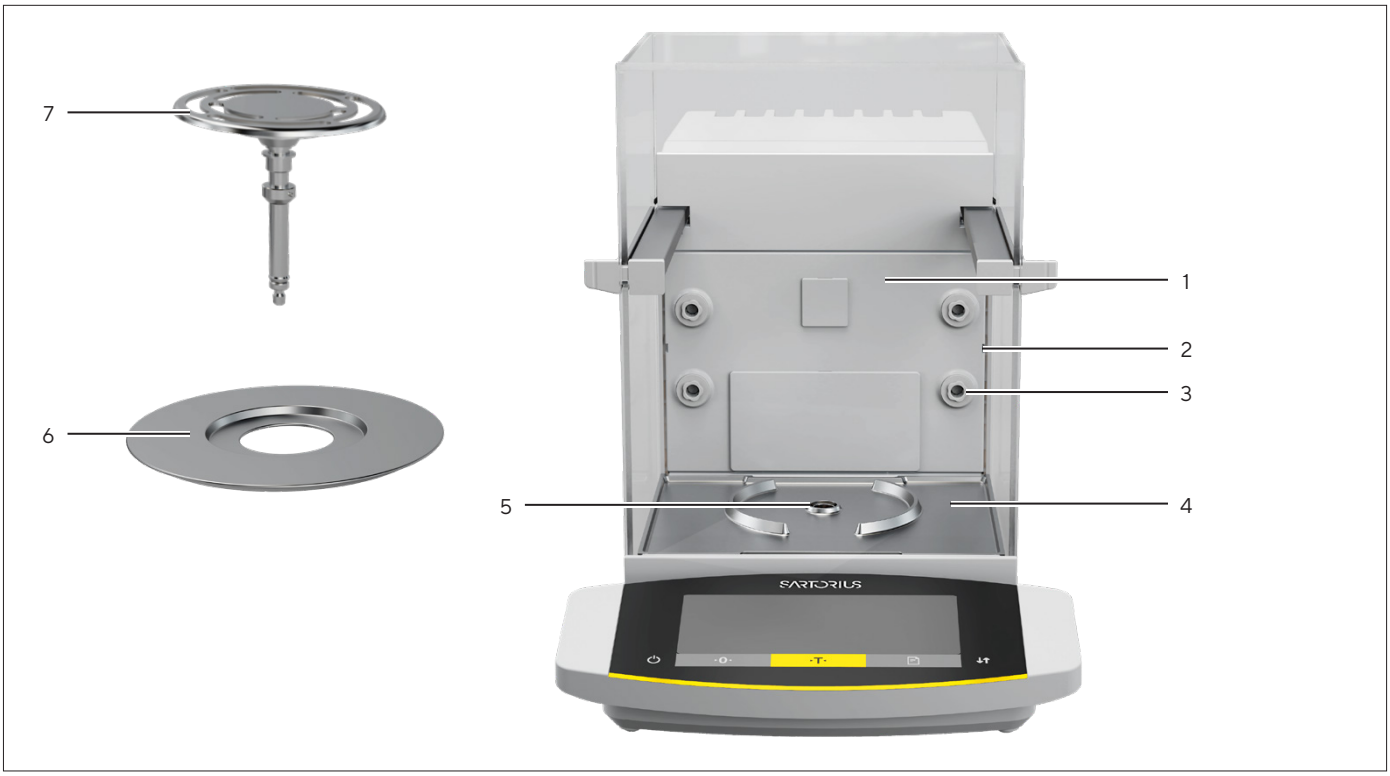


Fig. 3: Components in the weighing compartment and 50 mm weighing pan (example)

Pos.	Name	Description
1	Rear wall of weighing compartment	
2	Guide for glass insert	Available as an accessory.
3	Ionizer nozzle	The ionizer function must be activated in the control display.
4	Base plate of weighing compartment	Can be taken out, e.g. for cleaning.
5	Pan retainer	Holds the weighing pan. Prevents the weighing pan from turning.
6	Shield plate	Only necessary for 50 mm weighing pan.
7	Weighing pan	50 mm or 90 mm weighing pan (depending on the model)

3.4 Connections

3.4.1 Back of the Device

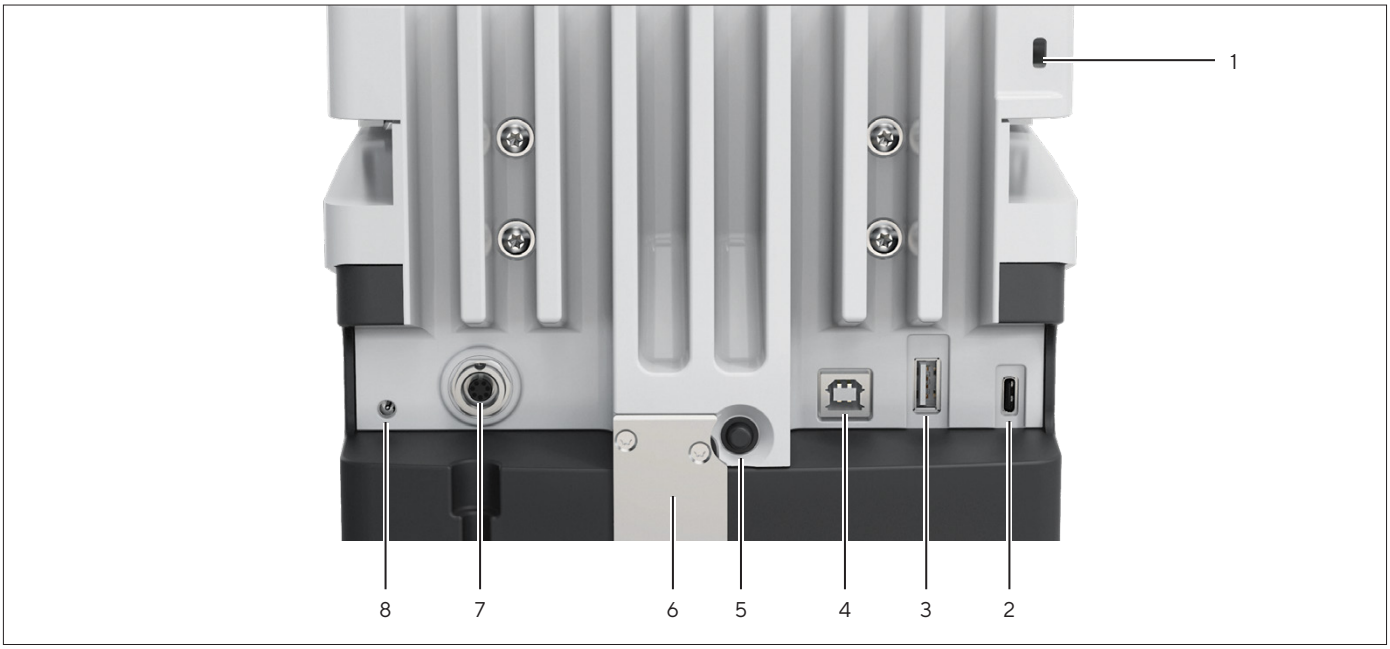


Fig. 4: Connections on the back of the device, seal for conformity-assessed devices removed

Pos.	Name	Description
1	Slot	For attaching a “Kensington” anti-theft device.
2	USB-C connection	For connecting accessories.
3	USB-A connection	For connecting accessories.
4	USB-B connection	For connection to a PC.
5	On key	When using the customized switch-on settings: Switches the device on.
6	Access switch	Protects the device from changes to the device settings. Is sealed for conformity-assessed devices.
7	Connection for operating display	Receives the connection cable for the operating display.
8	Power supply	

3.4.2 Rear Wall of Weighing Compartment



Fig. 5: Connections on the rear wall of the weighing compartment, bezels removed

Pos.	Name	
1	Connection for an internal climate module	Function **not** available.
2	Connection for the weighing compartment base module	For accessories, e.g. motorized inner draft shield or sample holder.

3.4.3 Operating Display

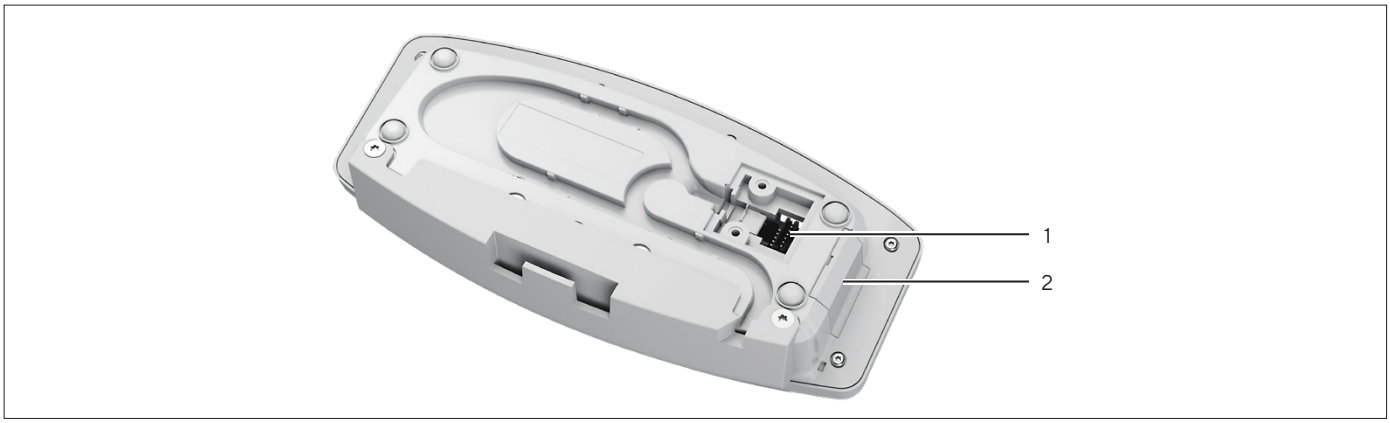


Fig. 6: Connections to the operating display, cover removed

Pos.	Name	Description
1	Weighing module connection	Receives the connection cable for the operating display.
2	USB-C connection	Concealed, **no** function, for Sartorius Service only

3.5 Protective Caps and Covers for Connections

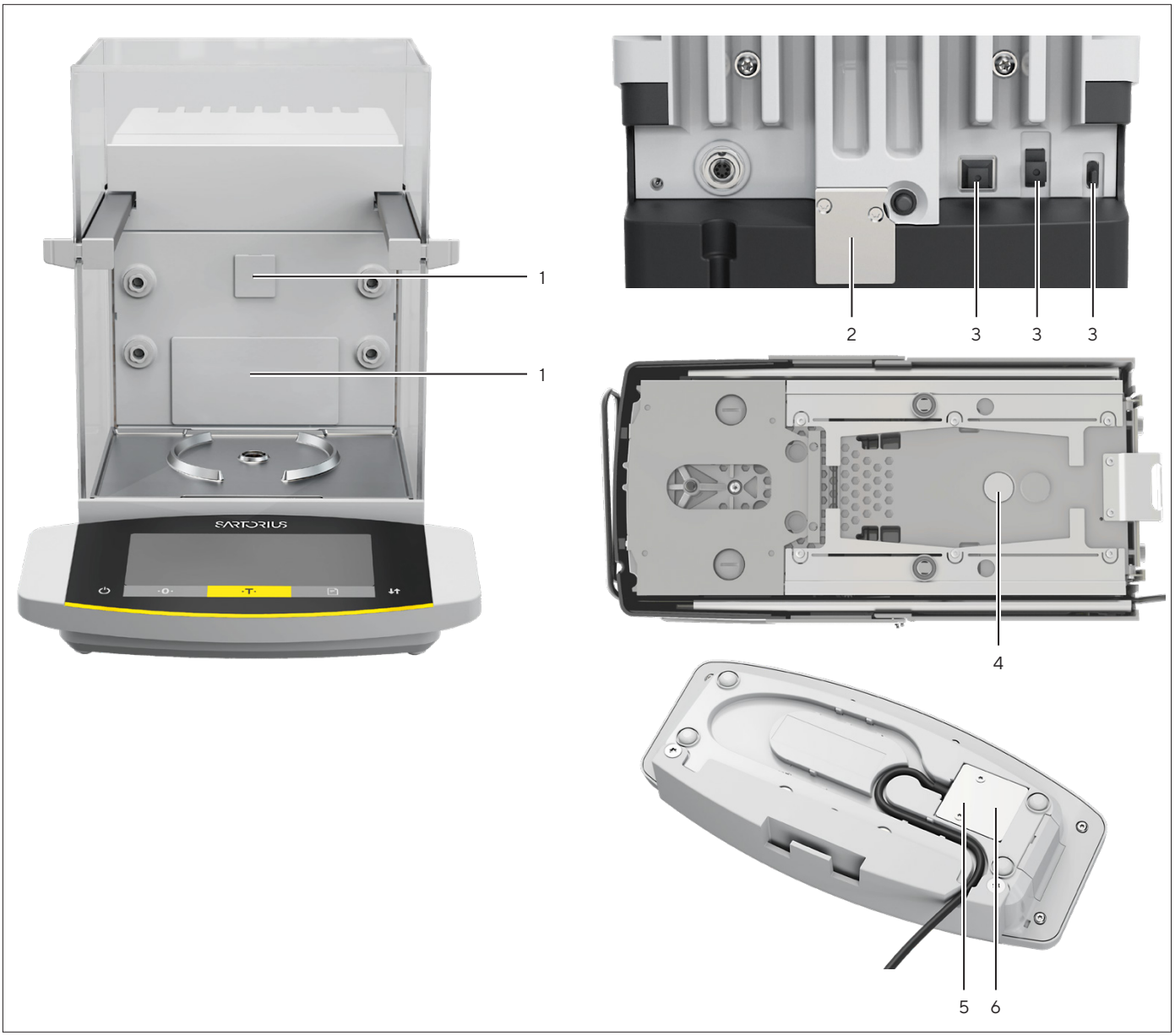


Fig. 7: Protective caps and covers on the rear wall of the weighing compartment, the back of the device, the underside of the device, and the operating display

Pos.	Name	Description
1	Cover for rear wall of weighing compartment	Installed in the rear wall of the weighing compartment.
2	Seal for conformity-assessed devices	Screwed onto the device and labeled with a sticker.
3	Protective cap for USB connection	Removable.
4	Cover for below-balance weighing	Screwed on.
5	Cover for weighing module connection	Screwed on.
6	Seal	Screwed on **(not** depicted).

3.6 Conformity-assessed Devices

Some settings of conformity-assessed models are protected against operator changes, e.g. “external calibration”. This measure is intended to ensure the suitability of the devices for use in legal metrology.

3.7 Accessories

Accessories are available for the device. These enable the device to be customized to the specific conditions during weighing procedures, e.g. weighing pan, sample holder or inner draft shield.

3.8 Below-balance Weighing

The device is suitable for below-balance weighing. Samples can be suspended for weighing using below-balance weighing, e.g. samples, which do **not** fit on the weighing pan. Below-balance weighing is possible under the following conditions:

- The device must be set up on a weighing table with recess.
- For below-balance weighing, a below-balance weighing hook must be inserted in the device base (see Chapter “16 Accessories and Spare Parts”, page 87).

M

In legal metrology:

- The below-balance weighing equipment may **not** be used.
- The cover of the below-balance weighing equipment may **not** be removed.

4 Operating Design

4.1 Operating Display in Weighing Mode

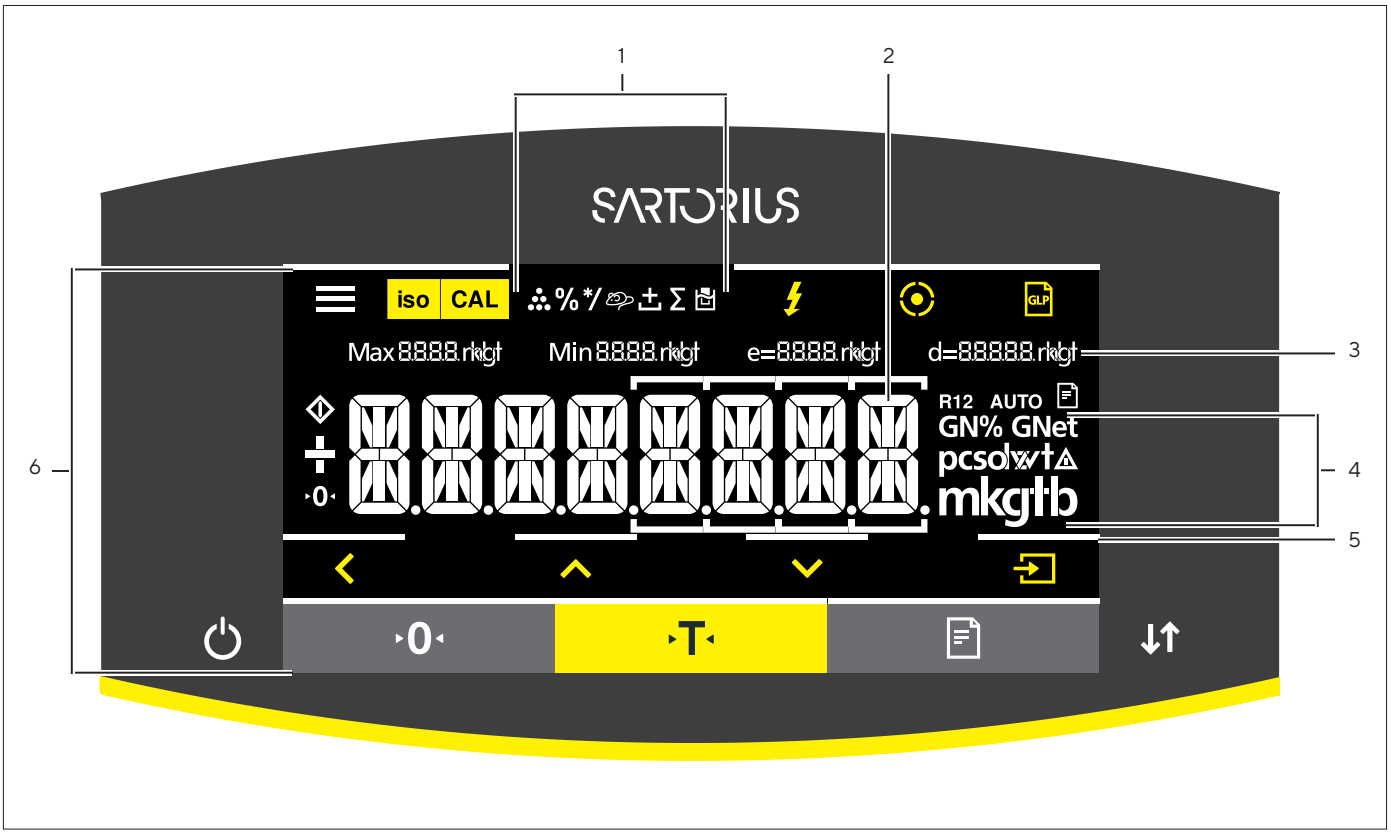


Fig. 8: Operating display in weighing mode (example)

Pos.	Name	Description
1	Symbols for the selected application	
2	Weight value display	In the selected basic unit.
3	Metrological data	
4	Weight units	Shows the selected basic unit, e.g. grams, [g].
5	Visual touch-feedback	Visual note on an active button or key.
6	Operating and display area	

4.2 Operating Display in the Menu

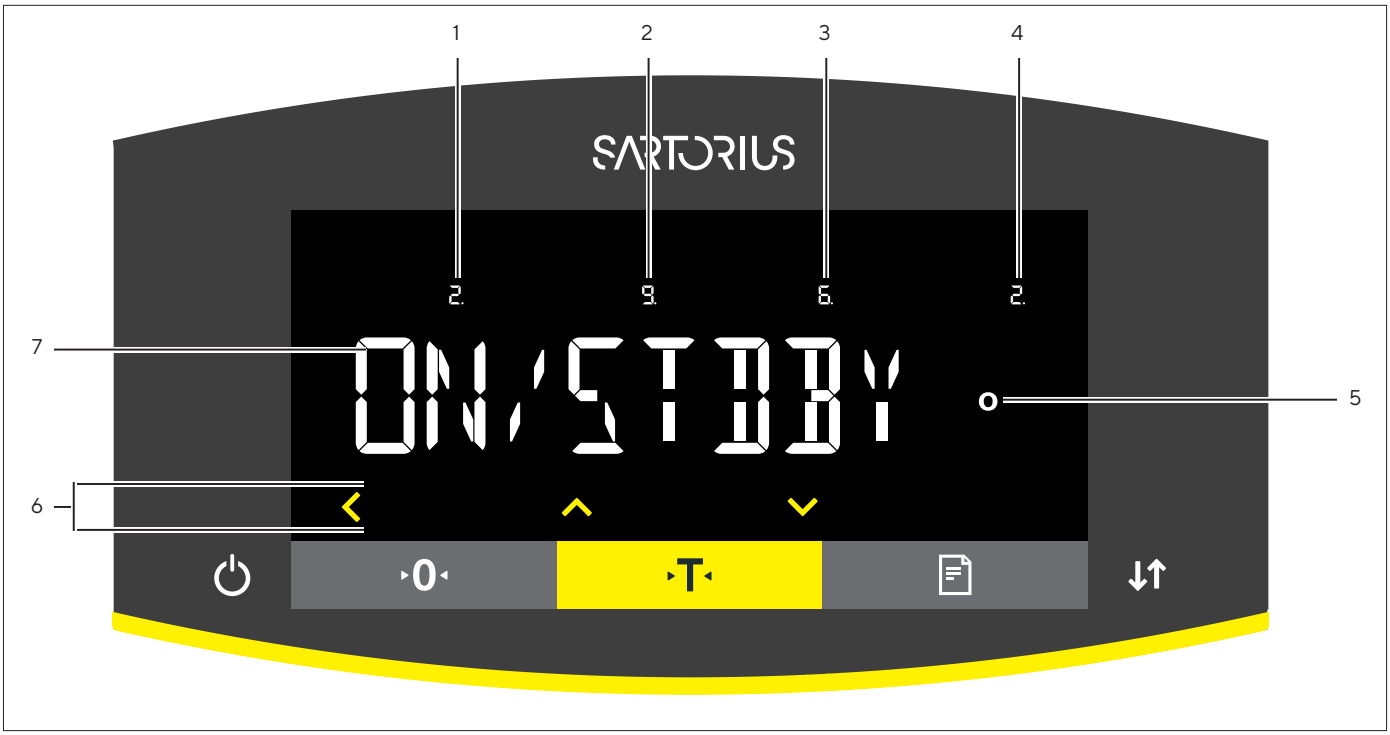


Fig. 9: Operating display in the menu (example)

Pos.	Name	Description
1	Position in the 1st menu level	Shows the position of the displayed menu or configuration value in up to 4 menu levels.
2	Position in the 2nd menu level	
3	Position in the 3rd menu level	
4	Position in the 4th menu level	
5	[Computed values] display	Note on the set menu item
6	Operating area	
7	Name of the menu or setting	

4.3 Operating Display Buttons and Keys

Symbol	Name	Description
	[Menu] button	– When the button is pressed: The settings menu opens. – If the button is held down: It switches to version display.
iso CAL	[isoCAL] button	– Starts the set calibration or adjustment function. – If the button is flashing: Starts the isoCAL function and performs internal adjustment.
CAL	[Adjust] button	– Starts the set calibration or adjustment function. – If the button is flashing: The calibration or adjustment function is performed.

Symbol	Name	Description
	[Ionizer] button	– Starts an ionization process. – If the button is flashing: The ioniziation process is performed.
	[Leveling] button	Starts a leveling process.
	[GLP] button	– Exits the GLP printout and starts printing the GLP footer. – If the “Net total”, “Totalizing” or “Statistics” application is active: Prints and deletes the saved values and exits the application.
	[Unit change] button	If the “Unit change” function is active: – If the button is held down: Accesses the “Unit change” function menu. – When the button is pressed: Switches between the basic unit display and up to 4 other units.
	[**Invalid** weight value] button	For conformity-assessed devices: Indicates the cause of a fault.
	[Back] button	– In the menu: – When the button is pressed: Returns to the previous display. – If the button is held down: Saves the menu settings. – When entering digits: Selects the previous digit position. – For an active application: Exits the application and deletes the set reference value.
	[Up] button	– In the menu: Scrolls through the menu levels or the available configuration values. – When entering digits: Increases the displayed value.
	[Down] button	– In the menu: Scrolls through the menu levels or the available configuration values. – When entering digits: Decreases the displayed value. – In the main display of an active application: Accesses the display to set the reference values.
	[Confirm] button	– In the menu: Accesses the displayed menu level or confirms the displayed configuration value. – When entering digits: Selects the next digit position. – In the main display of an active application: Starts the application process and saves the set reference value.
	[On | Off] key	The switch-on behavior depends on the settings, e.g.: – If the key is briefly pressed: Switches the operating display on. – If the key is held down: Switches the operating display off.
	[Zero] key	Zeroes the device.
	[Tare] key	Starts taring.
	[Print] key	Exports the readouts to the integrated data interfaces.
	[Change] key	– If a motorized draft shield is used: Opens or closes the doors on the draft shield. – If **no** motorized draft shield is used: Changes the set unit.

4.4 Displays in the Operating Display

Symbol	Name	Description
	[Leveling] display	– Indicates that the device is leveled. – If the center circle is flashing: Indicates that the device is **not** leveled.
	[Leveling] display	Flashes while the device is leveling.
	[Counting] display	Indicates that the “Counting” application is selected.
	[Percent weighing] display	Indicates that the “Weighing in percent” application is selected.
	[Calculation] display	Indicates that the “Calculation” application is selected.
	[Animal weighing] display	Indicates that the “Animal weighing” application is selected.
	[Net total] display	Indicates that the “Net total” application is selected.
	[Totalizing] display	Indicates that the “Totalizing” application is selected.
	[Density determination] display	Indicates that the “Density determination” application is selected.
	[Statistics] display	Indicates that the “Statistics” application is selected.
	[Busy] display	Indicates that the device is processing a command.
	[Sign] display	Indicates whether the value being displayed is positive or negative.
	[Zero] display	For some conformity-assessed devices: Indicates that the device has been zeroed.
	[AUTO] display	Indicates that the “Animal weighing” application starts automatically.
	[Data output] display	Indicates that the data output is active.
	[Percent] display	Indicates that a percentage value is being displayed.
	[Net] display	Indicates that a net value is being displayed.
	[Computed value] display	– In the menu: Identifies the selected configuration value. – If the “Calculation” or “Density determination” application is active: Indicates that a calculated value is being displayed.
	[Unit symbol] display	Indicates the set weight unit, e.g. [g] for “grams”.

Symbol	Name	Description
pcs	[Quantity] display	Indicates that a quantity is being displayed.
	[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. — For conformity-assessed devices: Indicates a fault. The cause of this fault is displayed after pressing the [Invalid weight value] button.

4.5 Licensable Device Functions

Some device functions are licensable. In order for these device functions to be usable, they must be activated at an additional cost. The device functions may be activated upon delivery or they can be activated later on. The following device functions can be activated:

— Use of motorized draft shield
— Use of ionizer

4.6 Navigating the Menus

Procedure



▶ To access the settings menu: Press the [Menu] button.



▶ To scroll through all menus in the same level: Press the [Up] or [Down] button.



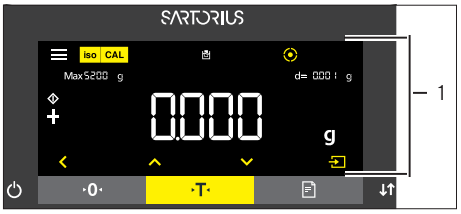
▶ To switch to the displayed menu level: Press the [Confirm] button.
▶ To scroll through the configuration values: Press the [Up] or [Down] button.
▶ To select the configuration value shown in the display or the displayed application: Press the [Confirm] button.



▷ The [Value] display identifies the selected configuration value or the selected application.



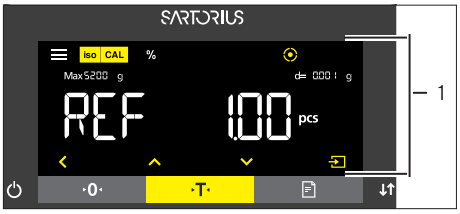
▶ To return to the next higher menu level: Press the [Back] button.
▶ To exit the settings menu: In the main menu level, press the [Back] button.



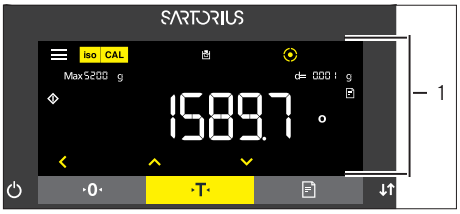
▶ If the start display (1) of a selected application is displayed:
  ▶ To start the application without changing the preset reference value: Press the [Confirm] button.
  ▶ To change a reference value before starting the application, e.g. density value, divisor or reference quantity: Press the [Up] button.
  ▷ The reference value display is shown for the selected application.



▶ If a reference value with decimal places needs to be selected in the reference value display (1) of a selected application, e.g. “Density determination” or “Calculation” applications:
  ▷ The selected digit position flashes.
  ▶ Use the [Up] or [Down] button to change the value for the selected digit position.
  ▶ If a digit position other than the last digit position is selected: Press the [Confirm] button to select the next digit position.
  ▶ If a digit position other than the first digit position is selected: Press the [Back] button to select the previous digit position.
  ▶ If the last digit position is selected: Press the [Confirm] button to save the displayed reference value and start the application process.
  ▶ If the first digit position is selected: Press the [Back] button to delete the displayed reference value and return to the application’s status display.



- If an integer reference value needs to be selected in the reference value display (1) of a selected application, e.g. “Weighing in percent” or “Animal weighing” applications:
  - Press the [Up] or [Down] button. This increases or decreases the reference value by 1.
  - Hold down the [Up] or [Down] button. This increases or decreases the reference value by 10.
  - To start the application: Press the [Confirm] button.
  - To delete the displayed reference value and return to the application’s status display: Press the [Back] button.



- If the results display (1) of a selected application is displayed:
  - To switch between the application results display and the set reference value display: Press the [Up] or [Down] button.
  - To exit the results display and delete the set reference value and the result of the application: Press the [Back] button.

4.7 Menu Structure

4.7.1 Menu Structure in the Main Menu

▶ Navigating the menus (see Chapter 4.6, page 25).

Level 1	Level 2	Description
SETUP	BALANCE	Set the functions of the device.
	GEN.SERV. “General services”	Reset the menu to factory settings.
DEVICE	USB.RS232 “USB-C (Host/Master)” / “COM-RS232, 9-pin”	Define the parameters for the COM interface or display a device connected via USB-C.
	PC-USB “USB-B (Device/Slave)”	Define the parameters for the USB interface.
	USB “USB-A (Host/Master)”	Display the device connected via USB-A.
	D.SHIELD “Draft shield”	If the motorized draft shield is licensed: Define the parameters for the draft shield.
	IONIZER “Ionizer”	If the motorized draft shield is licensed: Define the parameters for the ionizer.
	LEVELING “Leveling”	Define the parameters for leveling.
	MOTION.S.	– If a motion sensor is connected to the device: Define the parameters for the motion sensor. – If **no** motion sensor is connected: The menu is hidden.
	EXTRAS	Define the functions of the operating display.
DATA.OUTP. “Data output”	COM. SBI “SBI communication”	Configure the automatic data output.
	PRNT.PARA. Settings for the printout and direct transfer of data (PC)	Perform the settings for the printout.
	PC.DIRECT Direct transfer of data (PC)	Define the output format for the data exchange between the balance and the PC.

Level 1	Level 2	Description
APPLIC. “Applications”	WEIGH (Factory setting)	– Determine the weight value of a sample. – Activate the functions for all applications.
	COUNT	Determine the number of parts that have approximately equal weight.
	PERCENT “Percent weighing”	Determine the percentage share of a sample based on a reference weight.
	NET.TOTL. “Net total”	Carry out the weighing of components for a mixture.
	TOTAL “Totalizing”	Add weight values of independent weighing processes in a memory.
	ANIMALW. “Animal weighing”	Weigh unstable samples, e.g., animals. This program calculates the average of several measurement cycles.
	CALC. “Calculation”	Calculate the weight value using a multiplier or divisor, e.g., for determining the weight per unit area of paper.
	DENSITY “Density determination”	Determine the density of solid samples based on the buoyancy method.
	STATIST. “Statistics”	Save and statistically analyze weight values and calculated values.
UPDATE		Starts a software update. The menu is available only if a USB mass storage device is connected and the update file is recognized.
INPUT	ID NO.	Save the entered ID number for the device.
	LOT ID	Activates | deactivates the printout of a line for the LOT ID in the GLP printout. The LOT-ID can be entered in writing in the line.
	DATE	Set the date.
	TIME	Set the time.
	USER.PASS.	Set the user password.
	DEL.PASS.	Delete the user password. The menu is only available if a user password is set.
	SERV.PASS.	Activate the service mode.
	CAL.WT.	Define the value of an external user calibration weight.
	INTERV.	Change the interval for the automatic data output of the parameters “DATA.OUTP./COM.SBI/AUTO.CYC/INTERV” and “DATA.OUTP./PRNT.PARA./ACTIVATE/INTERV.”.
	QAPP-LIC.	Enter licenses for licensed device functions.

Level 1	Level 2	Description
INFO “Device information”	VER. NO. “Version number”	Display the software version number.
	SER. NO. “Serial number”	Display the device’s serial number.
	MODEL	Display the device’s model designation.
	APC VER.	Display the software version of the APC processor.
	BAC VER.	Display the software version of the BAC processor.
	WPC VER. “Draft shield version”	Display the draft shield software version.
	LICENSED	Displays the active licenses, e.g. – QP10: Motorized draft shield and ionizer – QAPP1001: Ionizer – QAPP1002: Motorized draft shield
LANGUAGE		Set the menu language of the operating display.

4.7.2 Menu Structure in the “Unit Change” Menu

▶ Navigating the menus (see Chapter 4.6, page 25).

Level 1	Description
Unit 1 – unit 4	Define the displayed weight unit and the resolution for the 1st to 4th convertible unit.

4.8 Parameter List

4.8.1 Parameters in the “SETUP/BALANCE” Menu

Parameter	Settings	Explanation
AMBIENT	STABLE*	Sets the ambient conditions to “stable”. Recommended for the following work environment: — Stable table — Slight movement in the room — Slight draft
	UNSTABL.	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
	V.UNSTBL.	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
	V.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
APP.FILT.	FINAL.RD.*	— 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.
	FILLING	Activates a filter that enables a very fast change in the display with minimal load changes (e.g. when dosing or filling vessels).
	REDUC.	Activates a weak but fast filter that always behaves in the same way for load changes (e.g. when dosing in automated systems).
	OFF	Deactivates the active application filter.
STABIL.	MAX ACC.	Sets the stability to “maximum accuracy”.
	V. ACC.	Sets the stability to “very accurate”.
	ACC.*	Sets the stability to “accurate”.
	FAST	Sets the stability to “fast”.
	V. FAST	Sets the stability to “very fast”.
	MAX.SPEED	Sets the stability to “maximum speed”.

* Factory setting

Parameter	Settings	Explanation
ST.DEL.	SHORT*	Sets the stability delay to “short”: The stability symbol only appears after a short delay in order to provide a reliable result despite fluctuations.
	MEDIUM	Sets the stability delay to “medium”: The stability symbol only appears after a longer delay in order to provide a reliable result in case of higher fluctuations.
	LONG	Sets the stability delay to “long”: The stability symbol only appears after a long delay in order to balance out major instability.
	NONE	Sets the stability delay to “none”: The stability symbol is displayed after the stability criterion is reached.
ZERO/TAR.	W/ STAB.*	After stability: The function of the [Zero] or [Tare] key is only executed after stability is achieved.
	AT STAB.	At stability: The function of the [Zero] or [Tare] key is executed if stability exists when the key is pressed.
	W/O STB.	Without stability: The function of the [Zero] or [Tare] key is executed immediately once the key is pressed.
AUTOZER.	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] key.
UNIT	GRAMS CARATS GRAINS PENYWT. MILLIGR.* MOMMES TOLA MESGHAL	— The device displays the selected unit. — The availability of units may depend on national legislation and is therefore country-specific.
DISP.DIG.	ALL*	“All digits on”: All digits are shown in the display. Not available on conformity-assessed devices.
	LP.ON/OFF	“Reduced by 1 decimal place for load change”: The last decimal place on the display is switched off until stability is achieved.
	DIVIS. 1	“Last digit scale interval 1”: The last digit always shows scale interval 1.
	MINUS 1	“Last decimal place off”: The last digit is switched off.
CAL.-ADJ.	INT.CAL.*	The [Adjust] button starts an internal calibration.
	INT.LIN.	The [Adjust] button linearizes the balance with the integrated weight (not for precision balance).
	EXT.CAL.	The [Adjust] button starts an external calibration with the preset calibration weight.
	E.CAL.USR.	The [Adjust] button starts an external calibration with the user-defined calibration weight value.
CAL.SEQ.	ADJUST*	Calibration and adjustment is one routine.
	CAL.-ADJ.	Adjustment must be started or exited manually after calibration with the [Adjust] button.

* Factory setting

Parameter	Settings	Explanation
ON Z/T	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.
ISOCAL	ON*	Activates the isoCAL function. The device is automatically adjusted as soon as a trigger starts the isoCAL function.
	OFF	Switches the isoCAL function off. This setting change is not available for all models.
	NOTE	The [isoCAL] button flashes if the balance needs to be adjusted. The isoCAL function must be manually triggered with the [Adjust] button.
CAL.UNIT	GRAMS*	Changes the calibration weight unit to grams.
	CONF.UNIT	Changes the calibration weight unit to milligrams.

* Factory setting

4.8.2 Parameters in the “SETUP/GEN.SERV.” Menu

Parameter	Settings	Explanation
MEN.RESET	DEFAULT	Resets the system settings to the factory default settings.
	NO*	Deactivates the option of resetting the device menu.

* Factory setting

4.8.3 Parameters in the “DEVICE/USB.RS232” Menu

Parameter	Settings	Explanations
DAT.REC.	SBI.WEIGH.	Enables a faster SBI communication, only for software commands to the weighing module.
	XBPI	Extended range of commands to control numerous balance functions with binary protocol for direct communication with the weighing module.
	SBI*	Enables SBI communication. The data is output to a PC or control unit. Enables the use of ESC commands from a PC to control the basic balance functions with ASCII protocol.
	OFF	Deactivates the automatic data output.
BAUD	600, 1200, 2400, 4800, 9600*, 19200, 38400, 57600, 115200	Sets the baud rate to the selected value.
PARITY	ODD*	Applies an odd parity.
	EVEN	Applies an even parity.
	NONE	Does not apply a parity.
HANDSHK.	SFTWARE	Sets the handshake protocol to software handshake.
	HRDWARE*	Sets the handshake protocol to hardware handshake.
	NONE	Does not set a handshake protocol.
DATABIT	7 BITS, 8 BITS*	Sets the number of data bits to the selected value.
DEV.USED	NONE*	Indicates that no device connection is detected at the USB port.
	[Device Designation]	Displays the designation of the devices connected to the USB port.

* Factory setting

4.8.4 Parameters in the “DEVICE/PC-USB” Menu

Parameter	Settings	Explanations
DAT.REC.	SBI.WEIGH.	Enables a faster SBI communication, only for software commands to the weighing module.
	XBPI	Extended range of commands to control numerous balance functions with binary protocol for direct communication with the weighing module.
	SBI*	Enables SBI communication. The data is output to a PC or control unit. Enables the use of ESC commands from a PC to control the basic balance functions with ASCII protocol.
	PC.SPREAD.	Enables data output to a spreadsheet program via a direct PC connection.
	PC.TEXT	Enables a direct PC connection to be established to a text processing program.
	OFF	Deactivates the data output.
BAUD	600, 1200, 2400, 4800, 9600*, 19200, 38400, 57600, 115200	Sets the baud rate to the selected value.
PARITY	ODD*	Applies an odd parity.
	EVEN	Applies an even parity.
	NONE	Does not apply a parity.
HANDSHK.	HRDWARE	Sets the handshake protocol to hardware handshake.
	NONE*	Does not set a handshake protocol.
DATABIT	7 BITS, 8 BITS*	Sets the number of data bits to the selected value.
* Factory setting		

4.8.5 Parameters in the “DEVICE/USB” Menu

Parameter	Settings	Explanation
DEV.USED	NONE*	Indicates that **no** device connection is detected at the USB port.
	[Device Designation]	Displays the designation of the devices connected to the USB port.
* Factory setting		

4.8.6 Parameters in the “DEVICE/D.SHIELD” Menu

Parameter	Settings	Explanation
CONTROL	OFF	Deactivates the [Change] key for the motorized draft shield.
	ON*	Activates the [Change] key for the motorized draft shield.
IONIZER	OFF*	Deactivates the ionizer for the operation of the draft shield.
	ON	Closing the draft shield activates the ionizer.
INT.ADJ.	NO	The draft shield does not perform an action if an internal calibration/ adjustment starts.
	CLOSE*	The draft shield closes if an internal calibration/adjustment starts.
OPEN.IONZ.	OFF*	The ionization process is **not** performed when the draft shield is opened.
	ON	If the draft shield is opened: An ionization process is performed.
SEN.L.MOT.	OFF	Deactivates the left proximity sensor.
	LOW, MEDIUM*, HIGH	Sets the sensitivity of the left proximity sensor.
SEN.S.MOT.	OFF	Deactivates the right proximity sensor.
	LOW, MEDIUM*, HIGH	Sets the sensitivity of the right proximity sensor.
* Factory setting		

4.8.7 Parameters in the “DEVICE/IONIZER” Menu

Parameter	Settings	Explanation
POWER	OFF	Deactivates the ionizer.
	SOFT	Sets the intensity of the ionization process to soft.
	MEDIUM*	Sets the intensity of the ionization process to medium.
	STRONG	Sets the intensity of the ionization process to strong.
DURATION	8 SEC* 5, 8, 10, 12, 15 SEC	Sets the duration of the ionization process.
* Factory setting		

4.8.8 Parameters in the “DEVICE/LEVELING” Menu

Parameter	Settings	Explanation
LEVEL	OFF	The device does not display messages on the status of the level.
	NOTE*	The [LEVELING] display flashes if the device needs to be leveled.
	ERR.MSG.	The [LEVEL.ERR.] message appears in the operating display if the device has not been leveled.
START	KEY	Sets the trigger for leveling to “key”: Leveling must be started manually by pressing the [Leveling] button.
	AUTO*	Sets the trigger for leveling to “automatic”: The device automatically performs a leveling function using the integrated inclination sensor before every internal calibration/adjustment.
* Factory setting		

4.8.9 Parameters in the “DEVICE/MOTION.S.” Menu

Parameter	Settings	Explanation
CONTROL	ON*	Activates the motion sensor.
	OFF	Deactivates the motion sensor.
NUM.GEST.	2 GESTUR.*	Define the number of possible gestures.
	4 GESTUR.	
LEFT.CMD.; RIGHT.CMD.; UP.CMD.; DOWN.CMD.		Define one of the following functions for the gesture: – Left – Right – Up – Down
	PRINT*	Execute the [Print] key.
	ZERO	Execute the [Zero] key.
	TARE	Execute the [Tare] key.
	IONIZER	Execute the [Ionizer] button.
	D.SHIELD	Execute the [Change] key.
	OPEN LFT.	Open the left door of the draft shield.
	OPEN RT.	Open the right door of the draft shield.
	CLOSE DS.	Close all draft shield doors.
	NONE	Assign **no** function.
* Factory setting		

4.8.10 Parameters in the “DEVICE/EXTRAS” Menu

Parameter	Settings	Explanation
MENU	EDITABL.*	Activates write access: The menu parameters can be changed.
	RD.ONLY	Activates read access: The menu parameters cannot be changed.
SIGNAL	OFF	Switches the acoustic signal off.
	QUIET	Sets the volume of the acoustic signal to “quiet”.
	MEDIUM*	Sets the volume of the acoustic signal to “medium”.
	LOUD	Sets the volume of the acoustic signal to “loud”.
KEYS	UNLOCKED*	Deactivates the key lock.
	LOCKED	Activates the key lock. Only the [On | Off], [Menu], [Zero], and [Tare] key can be used.
ON MODE	ON/STDBY*	The [On | Off] key switches between on | standby. Switch on using the [On| Off] key.
	ON/OFF	The [On | Off] key switches between on | off. Switch on with the On key.
	AUTO ON	Changes the function of the [On | Off] key: The device no longer switches off or to standby mode, instead it starts a boot process.
LIGHTING	ON*	Activates the lighting on the operating display.
	OFF	Deactivates the lighting on the operating display.
* Factory setting		

4.8.11 Parameters in the “DATA.OUTP./COM.SBI” Menu

Parameter	Settings	Explanations
COM. OUTP.	IND.NO*	Starts the data output after pressing the key or software command as an individual value without stability.
	IND.AFTER	Starts the data output after pressing the key or software command as an individual value after stability.
	AUTO W/O	Activates the automatic data output without stability.
	AUTO W/	Activates the automatic data output after stability.
STOP.AUTO	OFF*	Deactivates the option to abort the automatic data output.
	ON	The automatic data output is aborted by pressing the [PRINT] key or a software command.
AUTO.CYCL.	EACH VAL*	Starts the automatic data output with a cycle after each value.
	2nd VALUE	Starts the automatic data output with a cycle after every 2nd value.
	INTERV.	Starts the automatic data output with the output rate set under “INPUT / INTERV.”
FORMAT	16 CHARS	Data output provides 16 characters per line (16 characters only for the measured value).
	22 CHARS*	Data output provides 22 characters per line (16 characters for the measured values and 6 characters for identifiers).
	EXTR.LINE	Data output provides an additional line with the date, time, and weight value.
AUTO.TARE	OFF*	Deactivates automatic taring after data output.
	ON	The device automatically tares after data output.

* Factory setting

4.8.12 Parameters in the “DATA.OUTP./PRNT.PARA.” Menu

Parameter	Settings	Explanation
ACTIVAT.	MAN. NO	Manual without stability: Print process can be started manually at any time.
	MAN.AFTER*	Manual after stability: After pressing the [Print] key, the print command is only executed once stability is achieved.
	INTERV.	Starts the automatic data output with the output rate set under “INPUT / INTERV.”
	AUTO.LC	Automatically at load change: Print process starts after every load change.
FORMAT	22 CHARS*	Printer output prints 22 characters per line (16 characters for the measured value and 6 characters for identifiers)
	EXTR.LINE	Printer output prints an additional line with the date, time, and weight value.

* Factory setting

Parameter	Settings	Explanation
PRT.INIT.	OFF	Deactivates the output of the application parameters.
	ALL*	Print command prints all parameters.
	MAIN PAR.	Print command only prints the main parameters.
GLP	OFF*	Deactivates the GLP print.
	CAL.-ADJ.	Activates the GLP printout for all calibration and adjustment processes.
	ALWAYS	The GLP print is always switched on. All printouts contain a GLP header and a GLP footer.
TAR./PRT.	OFF*	Deactivates automatic taring after printer output.
	ON	Automatically tares the device after every printout.
TIME	24H*	Sets the time to 24-hour mode.
	12H	Sets the time to 12-hour mode (AM | PM). Locked when "YYYY.MM.DD" (ISO) date format is active.
DATE	DD.MMM.YY*	Sets the date display format to DD.MMM.YY.
	MMM.DD.YY	Sets the date display format to MMM.DD.YY.
	YYYY.MM.DD	Sets the date display format to YYYY.MM.DD (ISO).
* Factory setting		

4.8.13 Parameters in the "DATA.OUTP./PC.DIRECT." Menu

Parameter	Settings	Explanations
DEC.SEPAR.	DEC.POINT*	Sets a point as a decimal separator.
	DEC.COMMA	Sets a comma as a decimal separator.
OUTP.FORM.	TEXT+NUM.*	Exports text and numbers.
	ONLY NUM.	Only exports numbers.
* Factory setting		

4.8.14 Parameters in the “APPLIC./WEIGH” Menu

Parameter	Settings	Explanation
UNIT	OFF	Deactivates the “Unit change” function.
	ON*	Activates the “Unit change” function.
* Factory setting		

4.8.15 Parameters in the “APPLIC./COUNT” Menu

Parameter	Settings	Explanation
RESOLUT.	DISP.ACC.*	Sets the resolution to “display resolution”. The “Counting” application is started with the displayed value.
	10-FOLD	Sets the resolution to 10-times more accurate than “display resolution”.
	100-FOLD	Sets the resolution to 100-times more accurate than “display resolution”.
REF.UPDT.	OFF*	Deactivates automatic reference sample updating.
	AUTO	Activates the automatic reference sample updating.
* Factory setting		

4.8.16 Parameters in the “APPLIC./PERCENT” Menu

Parameter	Settings	Explanation
DEC.PLCS	NONE	The result of the “Weighing in Percent” application is displayed without decimal places.
	1 DEC.PL.*	The result of the “Weighing in Percent” application is displayed to 1 decimal place.
	2 DEC.PL.	The result of the “Weighing in Percent” application is displayed to 2 decimal places.
	3 DEC.PL.	The result of the “Weighing in Percent” application is displayed to 3 decimal places.
* Factory setting		

4.8.17 Parameters in the “APPLIC./NET-TOTL.” Menu

Parameter	Settings	Explanation
PRT.COMP.	OFF	Deactivates the component printout.
	ON*	Activates the component printout.
* Factory setting		

4.8.18 Parameters in the “APPLIC./TOTAL” Menu

Parameter	Settings	Explanation
PRT.COMP.	OFF	Deactivates the component printout.
	ON*	Activates the component printout.
* Factory setting		

4.8.19 Parameters in the “APPLIC./ANIMALW.” Menu

Parameter	Settings	Explanation
ACTIVIT.	CALM	Sets the intensity of the “Animal activity” to “calm”. Recommended for minor movements of the sample, e.g. caused by placement on the weighing pan.
	ACTIVE*	Sets the intensity of the “Animal activity” to “active”. Recommended for medium movements of the sample, e.g. caused by placement on the weighing pan.
	V.ACTIVE	Sets the intensity of the “Animal activity” to “very active”. Recommended for very active movements of the sample, e.g. caused by placement on the weighing pan.
START	MANUAL	The “Animal weighing” application must be manually selected in the start screen.
	AUTO*	Sets the trigger to start the “Animal weighing” application to “automatic”.
* Factory setting		

4.8.20 Parameters in the “APPLIC./CALC.” Menu

Parameter	Settings	Explanation
METHOD	MUL.*	Specifies multiplication as the method of calculation for the “Calculation” application.
	DIV.	Specifies division as the method of calculation for the “Calculation” application.
DEC.PLCS	NONE	The result of the “Calculation” application is displayed without decimal places.
	1 DEC.PL.*	The result of the “Calculation” application is displayed to 1 decimal place.
	2 DEC.PL.	The result of the “Calculation” application is displayed to 2 decimal places.
	3 DEC.PL.	The result of the “Calculation” application is displayed to 3 decimal places.
* Factory setting		

4.8.21 Parameters in the “APPLIC./DENSITY” Menu

Parameter	Settings	Explanation
DEC.PLCS	NONE	The result of the “Density determination” application is displayed without decimal places.
	1 DEC.PL.*	The result of the “Density determination” application is displayed to 1 decimal place.
	2 DEC.PL.	The result of the “Density determination” application is displayed to 2 decimal places.
	3 DEC.PL.	The result of the “Density determination” application is displayed to 3 decimal places.
* Factory setting		

4.8.22 Parameters in the “APPLIC./STATIST.” Menu

Parameter	Settings	Explanation
PRT.COMP.	OFF	Deactivates the component printout.
	ON*	Activates the component printout.
TAR./STAT.	OFF*	Deactivates automatic taring after the components are saved.
	ON	Activates automatic taring after the components are saved.
* Factory setting		

4.8.23 Parameters in the “INPUT” Menu

Parameter	Settings	Explanation
ID NO.	Maximum of 8 characters 09-0, A-Z, - , space	Saves the entered ID number for the device.
LOT ID	OFF*	Deactivates the output of a line for the lot ID number for the GLP printout.
	ON	– Activates the output of a line for the lot ID number for the GLP printout. – The LOT-ID can be entered in writing in the line.
DATE		Saves the entered date.
TIME		Saves the entered time.
USER.PASS.	Maximum of 8 characters 09-0, A-Z, - , space	Saves the entered user password.
* Factory setting		

Parameter	Settings	Explanation
SERV.PASS.	Maximum of 8 characters 09-0, A-Z, - , space	Activates service mode.
CAL.WT.		Changes the calibration weight for the adjustment or calibration process with the user-defined weight value.
INTERV.	0–9,999 seconds	Changes the interval for the automatic data output of the parameters “DATA.OUTP. / COM.SBI / AUTO.CYC / INTERV” and “DATA.OUTP. / PRNT.PARA. / ACTIVAT. / INTERV.”. At “0”, the fastest output rate is active (usually 100 ms).
QAPP-LIC.	QAPP	Enter the license designation for a licensed device function, e.g. for the motorized draft shield.
	LICENSE	Enter the license key for the licensed device function.
* Factory setting		

4.8.24 Parameters in the “LANGUAGE” Menu

Parameter	Settings	Explanation
LANGUAGE	ENGLISH*, DEUTSCH, FRANCAIS, ITALIANO, ESPANOL, PORTUG., РУССКИЙ, POLSKI	Defines the menu language.
* Factory setting		

4.8.25 Parameters in the “Unit Change” Menu

Parameter	Settings	Explanation
UNIT 1, UNIT 2, UNIT 3, UNIT 4	NONE*	Switches the Unit change off for this position.
	GRAMS – NEWTON	The available units are country-specific and depend on national legislation.
	ALL	“All digits on”: All digits are shown in the display.
	LP.ON/OFF	“Reduced by 1 decimal place for load change”: The last decimal place on the display is switched off until stability is achieved.
	DIVIS. 1	“Last digit scale interval 1”: The last digit always shows scale interval 1.
	MINUS 1	“Last decimal place off”: The last decimal place is switched off and the measured value is rounded up or down by one decimal place.
* Factory setting		

5 Installation

5.1 Scope of Delivery

Article	Quantity
Device	1
Base plate of weighing compartment	1
Semi-microbalance:	
90 mm weighing pan, slotted	1
High-capacity micro balance:	
50 mm weighing pan, slotted	1
Shield plate for 50 mm weighing pan	1
Power supply unit	1
Country-specific power supply cable with test seal	1
USB connection cable	1
Operating display for Cubis® MCE	1
Connection cable for operating display, installed on delivery	1
Draft shield	
Front panel	1
Top door	1
Left door	1
Right door	1
Rear panel, installed on delivery	1
In-use dust cover for display and control unit	1
Operating instructions	1
Specific certificates for the device	1
'Cleaning case' with cleaning utensils, e.g. brush for cleaning	1

5.2 Selecting an Installation Site

Procedure

- ▶ Ensure that the installation conditions have been met (see Chapter “15.2 Installation Conditions”, page 77).
- ▶ **NOTICE** Risk of damage to the power supply unit from argon! Observe the instructions for using argon (see Chapter “15.3 Ambient Conditions”, page 78).

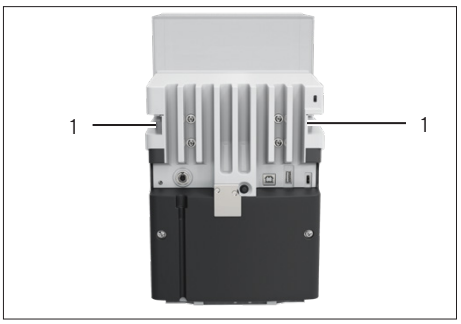
5.3 Unpacking

The device is packed in multilayer foam packaging. The device components, e.g. the weighing pan, are inserted into the second and third layers of the foam packaging.

The individual layers of the foam packaging must be removed one after the other.

Procedure

- ▶ Open the package.
- ▶ Undo the tension belt.
- ▶ Remove the top layer of foam packaging.
- ▶ Remove the second and third layers of foam packaging.
- ▶ Grip the device by the grooves (1) on the left and right-hand side and lift the device out of the bottom layer of foam packaging.
- ▶ Place the device down on a stable, completely flat surface.
- ▶ Sartorius recommends keeping the original packaging to return the device appropriately, e.g., for repairs.



5.4 Attaching or Removing the Operating Display

Procedure

- ▶ In order to attach the operating display to the device: Hook the operating display onto the operating display holder (1). The operating display must be positioned entirely on the base.
- ▶ To remove the operating display from the device: Pull the operating display up off of the operating display holder.



5.5 Placing the Device on its Side and Installing

For some installation work, the device has to be placed on its side, for example when inserting connection cables.

Material: 1 soft support base, for placing down the device

Requirement

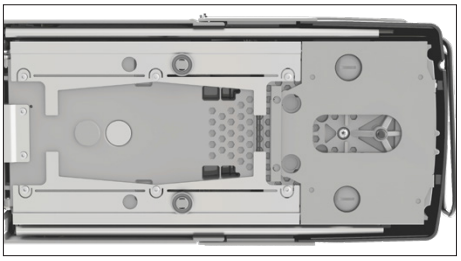
– There are **no** components installed in the pan retainer.
– All outer draft shield doors are removed: Front panel, upper panel, side panels.

⚠ CAUTION

Risk of injury when lifting or transporting!

▶ Use both hands when transporting the device and setting it down. To do this, reach sideways under the device with both hands in the rear part of the device.

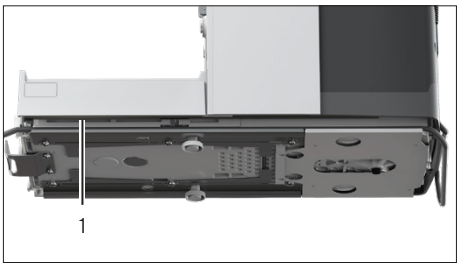
Procedure



▶ Remove the operating display from the device.
▶ If the device is to be placed on its side:
  ▶ Reach sideways under the device with both hands in the rear part of the device.
  ▶ Turn the device on its side and place it on the soft support base.
▶ If the device is to be returned to the upright position:
  ▶ Reach sideways under the device with both hands in the rear part of the device.
  ▶ Place the device back onto its base.

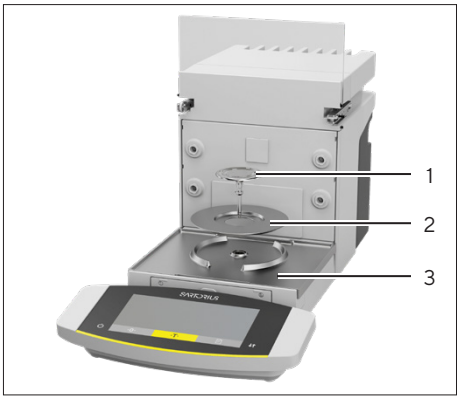
5.6 Inserting the Connection Cable for the Operating Display

Procedure



▶ Place the device on its side (see Chapter 5.5, page 46).
▶ Fully press the connection cable for the operating display into the cable channel along the side of the device. The connection cable for the operating display must **not** come into contact with the side panels as this can cause device malfunctions.
▶ Place the device back onto its base.

5.7 Positioning the Weighing Pan and Associated Components



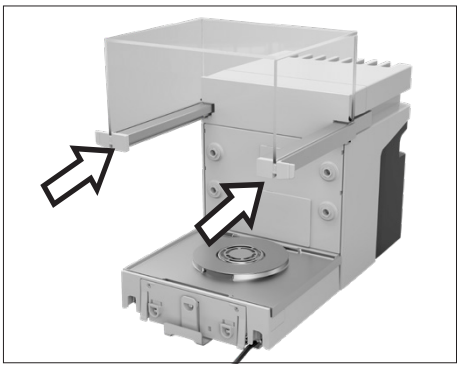
Procedure

- ▶ Insert the base of the weighing compartment (3) into the device.
- ▶ If there is a weighing pan with a shield plate: Place the shield plate (2) onto the pan retainer in the base of the weighing compartment.
- ▶ Insert the weighing pan (1) into the pan retainer.
- ▶ If the weighing pan needs to be turned, e.g. with sample holders:
  - ▶ Lift the weighing pan and turn it to the left or right.
  - ▷ The weighing pan snaps into the next position of the pan retainer. This avoids accidental turning of the weighing pan.

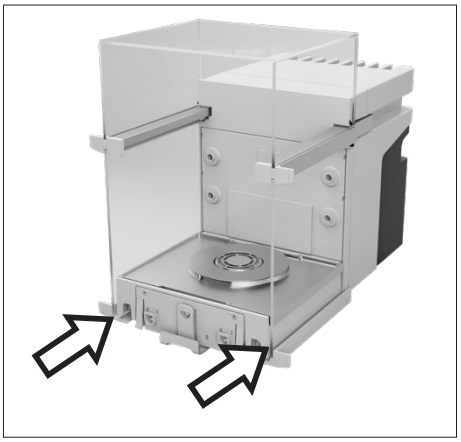
5.8 Installing the Draft Shield

Procedure

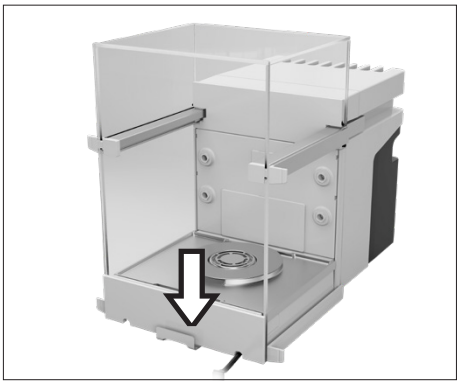
Procedure



- ▶ Remove the operating display from the device.
- ▶ Install the upper door. To do this, insert the two door panel mounts into the two guide rods on the side of the device and push backwards.



- ▶ Install the right and left doors. To do this, insert the door panel mounts, one after the other, into the guide rods at the bottom on the side of the device, and push backwards.



▶ Insert the panel mount for the front panel into the recesses in the front of the device.

5.9 Installing the Control Unit

The control unit can be installed in front of or next to the device.

Procedure

▶ Remove the operating display from the device.
▶ Place the control unit in the preferred position (for the dimensions for positioning the control unit, see Chapter “15.1 Dimensions and Weights”, page 77). The operating display must be positioned entirely on the base.

5.10 Acclimatization

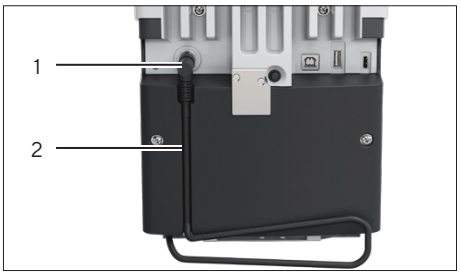
When a cold device is brought into a warm environment: The temperature difference can lead to condensation from humidity in the device (moisture formation). Moisture in the device can lead to malfunctions.

Procedure

▶ Allow the device to acclimatize at the installation site (for the acclimatization duration see Chapter “15.6 Wait Times”, page 80). The device must be disconnected from the power supply during that time.

6 Getting Started

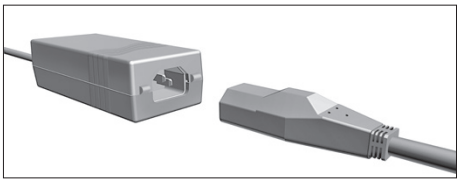
6.1 Attaching the Connection Cable for the Operating Display



Procedure

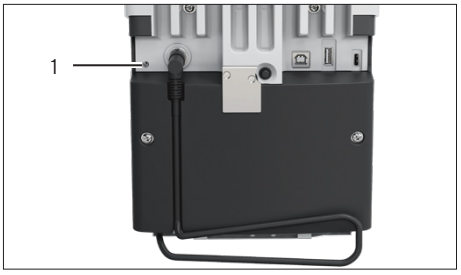
- ▶ Insert the connection cable for the operating display into the recess in the rear side of the device (2).
- ▶ Plug the connection cable for the operating display into the “Operating display connection” (1) and screw tightly by hand.

6.2 Connecting the Power Supply Unit to the Device



Procedure

- ▶ Plug the power supply cable into the power supply unit connection.



- ▶ Connect the connection cable from the power supply unit to the “Power supply” connection (1) on the back of the device.

6.3 Connecting the Power Supply

Procedure

- ▶ Check whether the country-specific power plug matches the power supplies at the installation site.
  - ▶ If required: Contact Sartorius Service.
- ▶ 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 or too low: Do **not** connect the device to the power supply.
  - ▶ Contact Sartorius Service.

▶ Connect the device to the power supply at the installation site. To do this, connect the power plug from the power supply cable into the power socket.
▷ The device is switched on and performs the initial functions for device startup.

6.4 Connecting Accessories

Accessories can be connected to the device. For certain accessory parts, the covers must be removed in the wall of the weighing compartment, e.g. for connecting a sample holder module.

Requirements

The accessories must be suitable for the device (see instructions for the accessories).

Procedure



▶ If a cover for the rear wall of weighing compartment needs to be removed from the device: Remove the top (1) and bottom (2) covers for the rear wall of the weighing compartment from the device.
▶ Connect the accessories to the appropriate connections on the device (for connections for accessory parts, see instructions for accessories).

6.5 Attaching Protective Caps and Covers

If connections of the device are **not** being used during operation: We recommend using the protective caps and covers provided to seal the connections on the rear wall of the weighing compartment and on the back of the device.

Procedure

▶ Check whether all unused connections have been sealed.
  ▶ If required: Seal the unused connections on the device using the corresponding covers or protective caps.

7 System Settings

7.1 Switching the Device On or Off

The function of the [On | Off] key can be set and behaves differently. The following describes the start-up and shut-down with the factory setting.

Procedure

- ▶ To switch the device on: Press the [On | Off] key.
- ▶ To switch the device off: Press and hold the [On | Off] key.

7.2 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.

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

The following settings are recommended to set up the device:

- Set the menu language
- Set the behavior of the isoCAL function
- Set the behavior of the motorized draft shield (only for devices with a motorized draft shield)

Procedure

- ▶ Press the [Menu] button.
- ▶ Open the desired settings menu.
- ▶ To adjust settings: Open the desired main menu and submenu.
- ▶ Select and confirm the desired configuration value (configuration values, see Chapter “4.8 Parameter List”, page 30).
- ▶ Exit the menu.
- ▷ With some settings, the [BOOTING] display appears in the operating display and the device restarts.

7.3 Entering the License Key

For the licensing of device functions, the corresponding application must be stored on the device. The application may be available upon delivery of the device, or it may saved to the device at a later stage by Sartorius Service.

Requirements

The application is stored on the device and the license key is known.

Procedure

- ▶ Open the INPUT" / „QAPP.LIC. / QAPP" menu.
- ▶ Enter the designation for the licensed device functions, e.g. "QP10"
- ▷ The "LICENSE" menu is opened.
- ▶ Enter the 8-digit license key.

7.4 Switching Off the isoCAL Function

M

If the isoCAL function is switched off for a conformity-assessed device: The device can only be used in restricted temperature ranges for legal-for-trade applications (see Chapter "15.3 Ambient Conditions", page 78). The isoCAL function **cannot** be switched off for all model versions.

Procedure

- ▶ In the "SETUP" / "BALANCE" menu, for the "ISOCAL" parameter, select the "OFF" configuration value.

7.5 Activating, Deactivating or Configuring the Ionizer

Requirements

A license key has been entered to use the ionizer.

Procedure

- ▶ **NOTICE** Risk of damage to the power supply unit from argon! Observe the instructions for using argon (see Chapter "15.8 Ionizer when Using Device in an Isolator with Protective Argon Atmosphere", page 80).
- ▶ To deactivate the ionizer: In the "DEVICE" / "IONIZER" / "POWER" menu, select the "OFF" setting.
- ▶ To activate the ionizer: In the "DEVICE" / "IONIZER" menu, set the desired intensity and duty cycle of the ionization process.
- ▶ Exit the settings menu.
- ▷ The [Ionizer] button appears in the operating display.

7.6 Configuring Motorized Opening and Closing of the Draft Shield

Pressing the [Change] key on the operating display of the device enables the doors of the draft shield to be opened of closed motorically. The draft shield has a learning capability which enables the following opening parameters to be saved:

- It is possible to control all doors together or individually.
- The opening width of the doors can be adjusted.

Requirements

A license key has been entered to use the motorized draft shield.

Procedure

▶ Close all draft shield doors.
▶ To determine how far a door is opened by pressing the [Change] key: Manually push the door open to the desired position.
▶ If several doors are to be controlled by the [Change] key simultaneously: Manually push the desired doors open to the desired position.
▶ Press the [Change] key.
▷ All open doors are closed.
▷ The settings for motorized opening and closing of the draft shield are saved.

8 Operation

8.1 Observing Warm-up Time

After connecting to the power supply, the warm-up time must be observed. This enables the device to reach its required operating temperature and ensures accurate values during weighing processes.

M

If this relates to a conformity-assessed device: The weight value is marked as **invalid** during the warm-up period.

Procedure

- ▶ Please ensure that the warm-up time is observed (see Chapter “15.6 Wait Times”, page 80).

8.2 Manually Opening and Closing the Draft Shield

All doors can be fully or partially opened.

Procedure

- ▶ To open the manual draft shield, e.g. the right-hand door: Take the corresponding door handle and push backwards.
- ▶ To close the manual draft shield, e.g. the right-hand door: Take the corresponding door handle and push it fully forwards.

8.3 Opening and Closing the Motorized Draft Shield

8.3.1 Opening or Closing on the Operating Display

Requirements

The motorized opening and closing of the draft shield is configured (see Chapter 7.6, page 53).

Procedure

- ▶ Press the [Change] key. This enables the motorized draft shield to be opened or closed motorically according to the stored setting.

8.3.2 Opening or Closing via Proximity Sensors

The proximity sensor works in “crossover mode”:

- Left proximity sensor: Opens and closes the right-hand and the upper door
- Right proximity sensor: Opens and closes the left-hand and the upper door

The sensitivity of the proximity sensors can be adjusted (see Chapter “4.8.6 Parameters in the “DEVICE/D.SHIELD” Menu”, page 35). Wearing safety gloves may inhibit the use of the proximity sensors.

If a motorized inner draft shield is mounted: The motorized inner draft shield also opens.

Requirements

A license key has been entered to use the motorized draft shield.

Procedure

▶ Hold your hand in front of the left or right proximity sensor. This enables the door to be fully opened or closed.

8.3.3 Manually Opening or Closing a Motorized Draft Shield

Procedure

▶ Take hold of the door handle and push in the desired direction.
▷ The door is automatically fully opened or closed.

8.4 Leveling the Device

Leveling compensates any inclines at the device’s installation site. If leveling is necessary: The [Leveling] display flashes.

Procedure

▶ Press the [Leveling] button.
▷ The [Leveling] display flashes.
▷ The device levels itself automatically using the motorized leveling feet.

8.5 Calibration, Adjustment or Linearization

Function	Description
Calibration	The device checks how much the displayed value deviated from the specified setpoint.
Adjustment	The device corrects the deviation to the setpoint.
Linearization	The device corrects the deviation from the ideal characteristic curve and the setpoint.

The device needs to be calibrated and adjusted regularly. Various methods can be selected for this:

- Adjusting with the isoCAL function
- Internal or external calibration or adjustment
- External Adjustment
- Internal linearization

Only internal and external adjustment are described below.

M External adjustment is **not** possible for conformity-assessed devices in legal metrology.

Procedure

▶ Where one of following conditions occurs, calibrate and adjust the device using the desired method:
  - 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 Adjusting with the isoCAL Function

The device can be automatically internally calibrated and adjusted using the isoCAL function.

Requirements

- The isoCAL function is set up (for the configuration values for the “ISOCAL” parameter, see Chapter “4.8.1 Parameters in the “SETUP/ BALANCE” Menu”, page 30).
- The conditions for triggering and executing the isoCAL function are met (see Chapter “15.10 Conditions for isoCAL Function”, page 82).

Procedure

▶ If the isoCAL function is set to automatic start and the isoCAL function is triggered:
  ▷ The [isoCAL] button flashes in the operating display.
  ▶ Wait until the isoCAL function is executed.
  ▷ In the operating display, a time display counts down from 15 seconds to 0.
  ▷ If **no** load change or **no** operation takes place on the device before the expiration of the time display: The isoCAL function starts.

▶ If the isoCAL function is set to manual start and the isoCAL function is triggered:
  ▷ The [isoCAL] button flashes in the operating display.
  ▶ Press the [isoCAL] button.
  ▷ The isoCAL function starts.

8.5.2 Internally Calibrating and Adjusting the Device

Internal Calibration and Automatic Adjustment

Requirements

- For internal calibration: The configuration value “INT.CAL.” is set in the “SETUP” / “BALANCE” / „CAL/ADJ.” menu.
- For the adjustment function based on calibration and automatic adjustment: The “JUST.” configuration value is set in the “SETUP” / “BALANCE” / “CAL.SEQ.“ menu.
- The weighing pan is unloaded.
- The displayed weight value remains unchanged.

Procedure

▶ Press the [Zero] key.
▶ To start the internal calibration/adjustment: Press the [Adjust] button.

▷ The calibration and adjustment function is executed:
  – If automatic leveling is configured: The device levels itself automatically.
  – The [CAL.RUN.] display appears and the [Adjust] button flashes.
  – The internal adjustment weight is loaded.
  – The device is automatically calibrated and the internal calibration weight is removed.
  – The [CAL.END.] display indicates the end of adjustment.

Starting Internal Calibration And Adjustment Manually

Requirements

– For internal calibration: The “INT.CAL.” configuration value is set in the “SETUP” / “BALANCE” / “CAL.ADJ.” menu.
– For the adjustment function based on calibration without automatic adjustment: The “CAL/ADJ.” configuration value is set in the “SETUP” / “BALANCE” / “CAL.SEQ.” menu.
– The weighing pan is unloaded.
– The displayed weight value remains unchanged.

Procedure

▶ Press the [Zero] key.
▶ If the device **cannot** be zeroed: Remove the sample to be weighed and re-zero the device.
▶ To start the calibration: Press the [Adjust] button.
▷ The calibration and adjustment function is prepared:
  – If automatic leveling is configured: The device levels itself automatically.
  – The [CAL.RUN.] display appears and the [Adjust] button flashes.
  – The internal adjustment weight is loaded.
  – The calibration weight value is displayed.
▶ To start the adjustment: Press the [Confirm] button.
▷ The device is calibrated and the internal calibration weight is removed.
▷ The [CAL.END.] display indicates the end of adjustment.

8.5.3 Externally Calibrating the Device (**Not** for Conformity-assessed Models)

Selecting Weight Value Used for External Calibration and Adjustment

A preset weight value or a user-defined weight value can be used.

Procedure

- ▶ If the preset weight value needs to be used: In the "SETUP" / "BALANCE" / "CAL.ADJ." menu, select the "CAL.EXT." setting.
- ▶ If a user-defined weight value needs to be used:
  - ▶ In the "SETUP" / "BALANCE" / "CAL.ADJ." menu, select the "CAL.E.USR." setting.
  - ▶ In the "INPUT" menu, select the "CAL.WT." setting.
  - ▶ Enter and confirm the desired weight value.

External Calibration and Automatic Adjustment

An adjustment weight must be placed on the weighing pan. The weight value for the adjustment weight is displayed.

Requirements

- — For external adjustment: The "EXT.CAL." configuration value is set in the "SETUP" / "BALANCE" / "CAL.ADJ." menu.
- — For the adjustment function based on calibration and automatic adjustment: The "ADJUST" configuration value is set in the "SETUP" / "BALANCE" / "CAL.SEQ." menu.
- — The weighing pan is unloaded.
- — The displayed weight value remains unchanged.
- — The device is **not** locked against external calibration. Devices with special country approvals may be locked against external calibration.
- — The adjustment weight is already there.

Procedure

- ▶ Press the [Zero] key.
- ▶ If the device **cannot** be zeroed: Remove the sample to be weighed and re-zero the device.
- ▶ Press the [Adjust] button.
- ▷ If automatic leveling is configured: The device levels itself automatically.
- ▶ Place the indicated calibration weight on the balance.

▷ The calibration and adjustment function is executed:
  – If the adjustment weight placed on the device is within the specified limits: The device is automatically adjusted after the calibration.
  – If the weight placed on the device is too high: The "+" symbol is displayed.
  – If the weight placed on the device is too low: The "-" symbol is displayed.
  – The [CAL.END.] message indicates the end of calibration.
▶ Remove the adjustment weight.

Starting External Calibration And Adjustment Manually

An adjustment weight must be placed on the weighing pan. The weight value for the adjustment weight is displayed.

Requirements

– For external adjustment: The "EXT.CAL." configuration value is set in the "SETUP" / "BALANCE" / "CAL.ADJ." menu.
– For the adjustment function based on calibration and automatic adjustment: The "CAL/ADJ." configuration value is set in the "SETUP" / "BALANCE" / "CAL.SEQ." menu.
– The weighing pan is unloaded.
– The displayed weight value remains unchanged.
– The device is **not** locked against external calibration. Devices with special country approvals may be locked against external calibration.
– The adjustment weight is already there.

Procedure

▶ Press the [Zero] key.
▶ If the device **cannot** be zeroed: Remove the sample to be weighed and re-zero the device.
▶ Press the [Adjust] button.
▷ If automatic leveling is configured: The device levels itself automatically.
▶ Place the indicated calibration weight on the balance.
▷ The calibration and adjustment function is prepared:
  – If the adjustment weight placed on the device is within the specified limits: The adjustment process can be started.
  – If the weight placed on the device is too high: The "+" symbol is displayed.
  – If the weight placed on the device is too low: The "-" symbol is displayed.
▶ Press the [Confirm] button. This starts the calibration.
▷ The [CAL.END.] message indicates the end of calibration.
▶ Remove the calibration weight after calibration is complete.

8.6 Weighing

When weighing chemicals, suitable vessels must be used for the material to be weighed. This makes it possible to prevent damage to the device or its accessories.

Requirements

The device is leveled and adjusted.

Procedure

- ▶ Press the [Zero] key.
- ▶ If below-balance weighing is being carried out: Suspend the sample on the hook for below-balance weighing, e.g. with a wire.
- ▶ If a vessel is being used for the sample:
  - ▶ Place the vessel for the material to be weighed onto the weighing pan.
  - ▶ Press the [Tare] key. This compensates for the weight of the vessel.
  - ▶ Place the sample in the vessel.
- ▶ If **no** vessel is used for the sample: Place the sample on the weighing pan.
- ▶ If the weight value **no longer** changes and the weighing unit is displayed: Read off the measured value.

8.7 Printing Results

8.7.1 Printing the Calibration Results

The results of the calibration can be printed in a GLP printout.

The use of the isoCAL function must be set (for configuration values for the “GLP” parameter, see Chapter “4.8.12 Parameters in the “DATA.OUTP./ PRNT.PARA.” Menu”, page 38):

Procedure

- ▶ Calibrate the device.
- ▷ Once calibration is complete:
  - ▷ The printing process starts.
  - ▷ The GLP footer is printed.

8.7.2 Weighing Results with ID Marking

The device and every lot can be assigned an ID number. The ID numbers are provided in the GLP header during GLP-compliant printing.

Requirements

- In the “DATA.OUTP. / INPUT / ID NO.” menu, an ID number is entered for the device.
- In the “DATA.OUTP. / INPUT / LOT ID” menu, the output of the lot ID line in the GLP printout is activated.
- In the “DATA.OUTP. / PRNT.PARA. / GLP” menu, the GLP-compliant printout is activated.
- In the “DATA.OUTP. / PRNT.PARA. / FORMAT” menu, the print output is set to 22 characters per line.

Procedure

▶ Start the printout. To do so, press the [Print] key.
▷ The GLP header is printed with the ID marking set in the menu and the current weight value.
▷ The [GLP] button appears in the operating display.
▶ To exit the GLP printout: Press the [GLP] button.
▷ The GLP footer is printed.

8.8 Starting the Ionization Process

Requirements

- A license key has been entered to use the ionizer.
- The [Ionizer] button appears in the operating display.

Procedure

▶ Press the [Ionizer] button.

8.9 Running Applications (Examples)

8.9.1 Executing the “Unit Change” Function

The “Unit change” function enables a switch between the basic unit display and up to 4 other units. The units can be set during the weighing process and the decimal places can be adjusted.

The basic unit is displayed every time the device is started.

Procedure

- ▶ To activate the “Unit change” function in the menu: In the “WEIGH” menu, for the “UNIT” parameter, select the “ON” configuration value.
- ▶ Exit the settings menu.
- ▷ The device boots up.

Selecting Convertible Units

Procedure

- ▶ If this relates to a device with a motorized draft shield: Press and hold down the [Unit change] button.
- ▶ If this relates to a device without a motorized draft shield: Press and hold down the [Unit change] button of the [Change] key.
- ▷ The “Unit change” function menu opens.
- ▶ Select a submenu from “Unit 1” – “Unit 4”.
- ▶ Select the desired unit and confirm the display (available units, see Chapter “4.8.25 Parameters in the “Unit Change” Menu”, page 43).
- ▶ To set the number of display digits for the selected unit: Press the “Confirm” button (for configuration parameters, see Chapter “4.8.25 Parameters in the “Unit Change” Menu”, page 43).
- ▶ Select the desired number of display digits and confirm the selection.
- ▶ Exit the “Unit change” function menu.

Converting the Weight Unit During Weighing or Before an Application

Procedure

- ▶ If this relates to a device with a motorized draft shield: Press the [Unit change] button until the desired unit is displayed.
- ▶ If this relates to a device without a motorized draft shield: Press the [Unit change] button or the [Change] key until the desired unit is displayed.
- ▷ The current weight value is displayed in the selected unit.

8.9.2 Running the “Statistics” Application

The “Statistics” application saves up to 99 weight values and evaluates these statistically.

The following values are saved and exported by the statistics application:

- 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

The “Statistics” application can be combined with the following functions:

- Unit change only available before starting the application
- ID marking
- Automatic taring

Procedure

- ▶ Select “Statistics” in the “APPLIC.” application.
- ▶ Exit the settings menu.
- ▶ Place a sample on the weighing pan.
- ▶ Change the displayed weight unit if necessary.
- ▶ To start the recording of the statistics: Press the [Confirm] button.
- ▷ The current weight value is saved.
- ▶ If the next value is to be saved:
  - ▶ Remove the sample on the weighing pan.
  - ▶ Place a new sample on the weighing pan and press the “Confirm” button.
- ▶ To switch between the display of the current weight value, the number of saved components, and the calculated mean in the results display: Press the [Up] or [Down] button.
- ▶ To print and exit the current statistics, and to delete the saved values: Press the [Back] or [GLP] button.

9 Cleaning and Maintenance

9.1 Preparing the Device for Cleaning

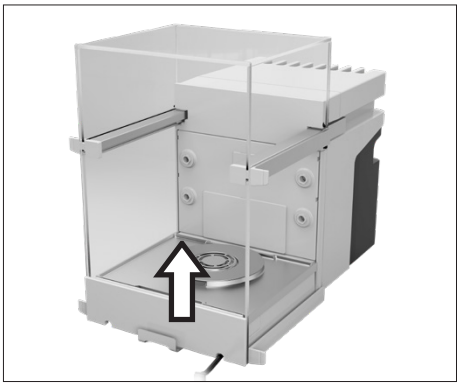
Procedure

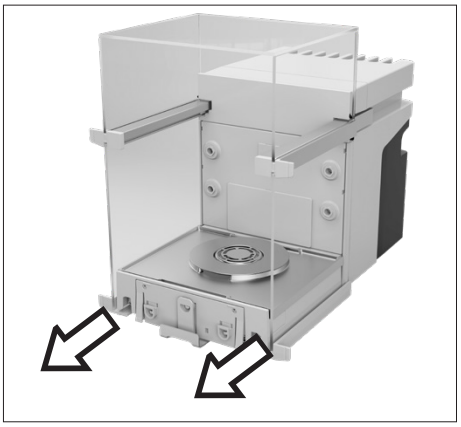
- ▶ If an accessory is connected to the device: Disconnect the accessory from the device (see instructions for the accessory).
- ▶ If the upper or lower cover for the rear wall of the weighing compartment is removed: Insert the cover for the weighing compartment into the rear wall of the weighing compartment (see Chapter 6.5, page 50).

9.1.1 Dismantling the Draft Shield

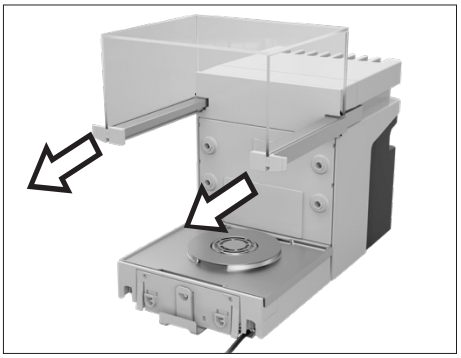
Procedure

- ▶ Remove the operating display from the device.
- ▶ Pull off the front panel of the device upwards.



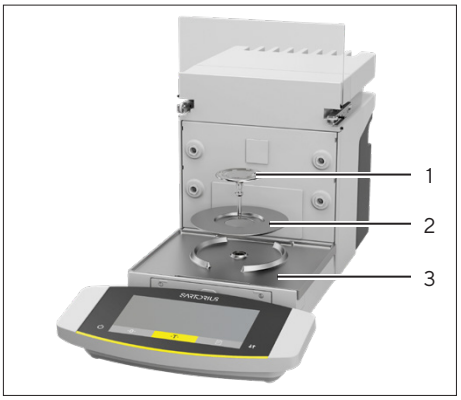


- ▶ Remove the right and left doors. To do this, pull each door forwards to pull it out of the guide rods on the device.



- ▶ Pull the upper door forwards on both sides and remove it from the guide rods on the device.

9.1.2 Removing the Weighing Pan and Associated Components



Procedure

- ▶ Open the draft shield, e.g. the right-hand door.
- ▶ Remove the weighing pan and the associated components from the device:
  - — Weighing pan (1)
  - — If there is a weighing pan with a shield plate: The shield plate (2)
  - — Base plate of weighing compartment (3)

9.2 Cleaning the Device

Sartorius recommends cleaning the device at regular intervals, e.g. weekly. There must be **no** foreign substances, e.g., particles, fibers or liquids, in the area of the weighing pan.

To clean the device, you can use the cleaning utensils supplied or a damp cloth.

Requirements

The device is ready for cleaning (see Chapter 9.1, page 65).

Procedure

- ▶ ⚠ **WARNING** Risk of injury due to electrical current! Protect the power supply unit and the power supply cable from liquids.
- ▶ Only use suitable cleaning agents and cleaning procedures and observe the product information for the cleaning agent used (for cleaning agents, see Chapter “15.15 Cleaning Agents and Cleaning Procedures”, page 84).
- ▶ Dampen a cleaning cloth with the cleaning fluid and wipe the surfaces of the device, e.g. the housing or the weighing compartment.
- ▶ If required: Dry the surfaces with a **non**-abrasive cloth.
- ▶ If the dirt is **not** coming away easily:
  - ▶ Lightly spray the surfaces of the device with the cleaning fluid.
  - ▶ Leave the cleaning fluid to work (for recommended contact time, see Chapter “15.15 Cleaning Agents and Cleaning Procedures”, page 84).
  - ▶ Dry the surfaces with a **non**-abrasive cloth.

9.3 Maintenance Schedule

Interval	Component	Activity	Chapter, Page
12 to 24 months, depending on operating conditions	Device	Contact Sartorius Service.	

9.4 Re-starting the System

Procedure

- ▶ Reinstall the removed components back onto the device (see Chapter 5, page 44):
  - — Draft shield
  - — Weighing Pan and Associated Components
  - — Accessories
- ▶ Connect the desired accessories (see Chapter 6.4, page 50).
- ▶ Connect the device to the power supply (see Chapter 6.3, page 49).

9.5 Performing a Software Update

A software update can be installed (software package) from a USB mass storage device using the device's USB-A or USB-C connection.

Requirements

- The device is connected to the power supply.
- The USB mass storage device is formatted with file system "FAT32".

Procedure

▶ Download the software package from the Sartorius website onto the USB mass storage device. To do this, download the "Cubis® MCE Firmware" file.
▶ If this relates to a zip file: Unpack the software package on the USB mass storage device. The files must be saved at root level. The files must **not** be set aside in a folder.
▶ Insert the USB mass storage device with the software package into the device's USB-A connection.
▷ The device emits a short acoustic signal. This confirms that the software package is available and can be run.
▶ Open the "Device Settings" / "UPDATE" menu.
▶ Select the "EXECUTE?" parameter.
▶ Wait until the device has performed the software update. Do **not** switch off the device
▷ The device performs the software update and restarts. This updates all the identified components with the new firmware.
▷ The device confirms the end of the installation process with the [FINISH] display.
▷ The device restarts.
▷ The device is ready for use.

10 Malfunctions

10.1 Status Messages

Status message	Fault	Cause	Solution	Chapter, Page
OLDER?	If a USB mass storage device with a software update is connected: The device detects an obsolete update version.	The software update version is older than the software version on the device.	To perform the update anyway: Confirm the display.	
LOCKED	A software update is to be installed on a conformity-assessed device.	Software updates are **not** permitted for conformity-assessed devices.	Contact Sartorius Service. If the software update has received corresponding approval: Sartorius Service can carry out the software update. Re-verification may then be necessary.	
INVALID	If a USB mass storage device with a software update is connected: The device **cannot** find a valid update.	**No** valid manufacturer software updates exist on the connected USB mass storage device.	Check whether files exist on the USB mass storage device. If required: Contact Sartorius Service.	

10.2 Warning Messages

Warning Message	Fault	Cause	Solution	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 in the menu, e.g. resolution, unit, decimal places.	
HIGH	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.	

Warning Message	Fault	Cause	Solution	Chapter, Page
LEVEL.ERR.	The device **not** measuring a weight value.	The device is **not** leveled.	Level the device.	8.4, 55
LOW	The modulation of the weighing converter inside the weighing module is too low.	**No** weighing pan has been placed on the balance. A previously forgotten weight was removed after starting the device.	Insert the weighing pan into the device and switch the device off and on again.	
ERR 54	The modulation of the weighing converter inside the weighing module is too low.	An error exists in the weighing system or in the device electronics.	Contact Sartorius Service.	
CHK.ERR.	The internal storage medium is faulty.	A memory error exists in the firmware.	Perform a software update. If the problem occurs again: Contact Sartorius Service.	9.5, 68
COMM.ERR.	The device is **not** receiving any weight values.	No communication exists between the control unit and the weighing module.	Wait until the control unit restores the communication with the weighing module. If the problem occurs again: Contact Sartorius Service.	
ELISE.ERR.	**No** communication with the inclination sensor.	A memory error exists in the firmware.	Switch the device off and on again. If the problem occurs again: Contact Sartorius Service.	
MOTOR.ERR.	The device **cannot** be leveled.	The device's incline is too great or a motorized foot is defective.	Change the installation site. If the problem occurs again: Contact Sartorius Service.	
PRT.ERR.	The [Print] key is locked.	The data interface for printout is set to xBPI mode. The handshake is active and is not operated by the connected peripheral equipment.	Reset the menu to the factory settings. Deactivate the handshake. If the problem occurs again: Contact Sartorius Service.	

Warning Message	Fault	Cause	Solution	Chapter, Page
SYS.ERR.	The system data is faulty.	A memory error exists in the control unit.	Switch the device off and on again.	
			If the problem occurs again: Contact Sartorius Service.	
ERR 02	The device **cannot** be adjusted when starting the adjustment function due to a zero point error.	The device was **not** tared or zeroed before calibration.	Tare or zero the device.	
			Check the preload and set if necessary.	
		The device is loaded.	Remove the sample from the weighing pan.	
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 [Back] 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 if necessary.	
ERR 520 – ERR 527	The component replacement is faulty. The software update could **not** be completed.	The firmware versions of the available components do **not** match.	Check the device’s firmware.	
			Perform a software update.	9.5, 68
			If the problem occurs again: Contact Sartorius Service.	
600 – 602	There is a fault in the ionizer.	There is **no** connection to the ionizer, or the ionizer function is restricted.	Disconnect the device from the power supply.	
			Reconnect the device to the power supply.	
			If the problem persists: Contact Sartorius Service.	
603	The ionizer is functioning, but **not** without errors.	The ionizer must be cleaned or serviced by Sartorius Service.	Contact Sartorius Service.	

10.3 Malfunctions on the Operating Display or During Weighing Processes

Fault	Cause	Solution	Chapter, Page
The operating display is blank.	The device is disconnected.	Check whether the power supply unit is connected to the device and the power supply at the installation site.	6.2, 49 6.3, 49
The operating display is blank or an error is displayed.	The operating display is **not** connected.	Check if the connection cable for the operating display is connected to the device.	6.1, 49
The displayed weight value changes constantly.	The device installation site is unstable.	Adjust the parameter for the ambient conditions.	
		Change the installation site.	5.2, 45
	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 adjusted.	Calibrate the device.	
	The device was **not** tared before weighing.	Tare the device.	
The [Leveling] display flashes.	The device must be leveled.	Level the device.	8.4, 55

10.4 Faults with Conformity-assessed Devices

Fault	Cause	Solution	Chapter, Page
The [**Invalid** weight value] display is opened.	The “Unit change” function is locked.	Press the [Invalid weight value] button. This displays the cause, e.g. the fault LEVEL.ERR.	
LEVEL.ERR.	The device must be leveled.	Level the device.	8.4, 55
ISOCAL.ER.	The device must be calibrated.	Calibrate the device.	
WARMUP.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.	8.1, 54
VALUE.ERR.	The displayed value is invalid.	Set the device to zero.	

11 Decommissioning

11.1 Decommissioning the Device

Procedure

- ▶ Disconnect the device from the power supply.
- ▶ Disconnect the device from all connections at the installation site.
- ▶ If an accessory is connected to the device: Disconnect the accessory from the device (see instructions for the accessory).
- ▶ If the upper or lower cover for the rear wall of the weighing compartment is removed: Insert the cover for the weighing compartment into the rear wall of the weighing compartment (see Chapter 6.5, page 50).
- ▶ Clean the device.

11.2 Dismantling Device Parts

11.2.1 Dismantling Draft Shield and Components in the Weighing Compartment

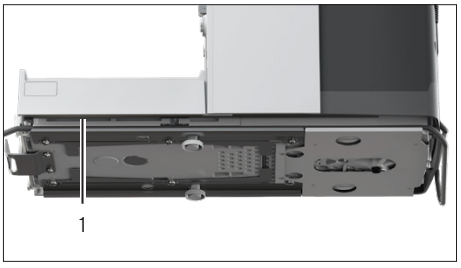
Procedure

- ▶ Remove the weighing pan and the corresponding components from the device (see Chapter 9.1.2, page 66).
- ▶ Dismount the draft shield (see Chapter 9.1.1, page 65).

11.2.2 Dismounting the Connection Cable

Procedure

- ▶ Place the device on its side (see Chapter 5.5, page 46).
- ▶ Remove the connection cable for the operating display (1) out of the cable channel along the side of the device.
- ▶ Remove the Ethernet connection cable out of the cable channel along the side of the device.
- ▶ Place the device back onto its base.



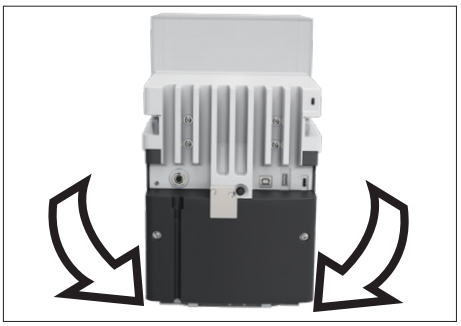
12 Transportation

12.1 Transporting the Device

Requirements

- The device has been decommissioned.
- The operating display is secured to the device.

Procedure



- ▶ ⚠ **CAUTION** Risk of injury when lifting or transporting!
  - ▶ Disconnect the device from all connections at the installation site.
  - ▶ Use both hands when transporting the device and setting it down. To do this, reach sideways under the device with both hands in the rear part of the device.
  - ▶ Do **not** carry the device on the draft shield or the control unit.
- ▶ For transporting over longer distances, use a trolley with soft mats. The operating display must be positioned entirely on the base.

13 Storage and Shipping

13.1 Storage

Requirements

The device has been decommissioned.

Procedure

- ▶ Store the device according to the ambient conditions (see Chapter “15.3 Ambient Conditions”, page 78).

13.2 Returning the Device and Parts

Defective devices or parts can be returned to Sartorius. Returned devices must be clean and packed in their original packaging.

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

Devices contaminated with hazardous materials, e.g., harmful biological or chemical substances, will **not** be accepted for repair or disposal.

Procedure

- ▶ Decommission the device.
- ▶ Contact Sartorius Service for instructions on how to return devices or parts (please refer to www.sartorius.com).
- ▶ Pack the device and its parts in their original packaging for return.

14 Disposal

14.1 Disposing of the 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.

Procedure

- ▶ Dispose of the device in accordance with local government regulations. 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.

15 Technical Data

15.1 Dimensions and Weights

	Unit	Value
Dimensions		
Dimensions (L x W x H)	mm	486 x 240 x 301
Dimensions (L x W x H), with operating display removed	mm	376.5 x 240 x 301
With operating display removed: Max. distance between device and operating display	cm	25
Width of door opening, with fully opened side door	mm	145
Width of door opening, with fully opened upper door	mm	145
Weighing pan dimensions (diameter)		
Semi-microbalance	mm	90
High-capacity Microbalance	mm	50
Weight, with draft shield mounted, approx.	kg	15

15.2 Installation Conditions

The installation site meets the requirements relating to the ambient conditions.
Access to operation-relevant parts is guaranteed.
Space requirements
Suitable for the dimensions of the device and the associated components.
Setup surface
Suitable for the weight of the device and the associated components.
Stable, fully flat, even, low vibrations
Not directly against a wall
No heat from heating systems or direct sunlight
No drafts from open windows, AC systems, or doors
No vibrations
No “heavy traffic” areas (personnel)
No electromagnetic fields
No dry air
When setting up the device in an isolator with protective argon atmosphere
Power supply unit is positioned outside the isolator and the argon atmosphere

15.3 Ambient Conditions

	Unit	Value
Installation site		
Standard laboratory rooms		
Installation site according to IEC 60259-1, maximum altitude above sea level	m	3000
For indoor use only		
Air pressure, maximum	mbar	600 – 1200
Temperature		
In operation	°C	+5 – +40
In operation, with isoCAL function*	°C	+10 – +30
In operation, without isoCAL function*	°C	+17 – +27
In operation, with conformity-assessed devices: see specifications on the device ID label		
During transport	°C	-20 – +60
Relative humidity		
For temperatures up to 31 °C	%	80
Then linear decrease from 80% at 31 °C to 50% at 40 °C		
* Scope of application as per Directive 2014/31/EU		

15.3.1 Protection Class

IP Protection: Protected against dust and water (IP30)

15.4 Storage Conditions

	Unit	Value
Temperature	°C	-20 – +60
Dry		

15.5 Electrical Data

15.5.1 Power Supply

	Unit	Value
Power supply only permitted using Sartorius power supply unit		
Sartorius network device, type 1000099844		
Power supply at installation site (primary)		
AC voltage	V	100 – 240 ± 10%
Frequency	Hz	50 – 60
Current consumption, maximum	A	0.8
Overvoltage category according to IEC 60,664-1		II
Pollution level according to IEC 60664-1		2
Device power supply (secondary)		
Max. DC voltage at 4.3 A output current	V	15 ±15%
Power, maximum	W	64.5
Power supply cable		
Power supply cable according to IEC 60320-1 C13 | C14, with IEC plug, 3-pin, and with country-specific power plug		

15.5.2 Safety of Electrical Equipment

According to EN 61010-1 / IEC 61010-1 Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General Requirements

15.5.3 Electromagnetic Compatibility

Interference Immunity
Suitable for use in industrial areas
Transient emissions
Class B; suitable for use in residential areas and areas that are directly connected to a low voltage network that (also) supplies residential buildings.

15.5.4 Interfaces

USB-A connection
Communication: USB host (master)
USB-B connection
Communication: USB device (slave)
Type of interface: Virtual serial interface (virtual COM-port, VCP) and “PC direct” communication
USB-C connection
Communication: Downstream-facing port (DFP), USB host (Master)
Communication: RS232 connection with accessory YCC-USB-C-D09M

15.6 Wait Times

	Unit	Value
Acclimatization: Time period between unpacking and connecting to a power supply	h	2
Warm-up (reaching operating temperature): Time period between connecting to the power supply and carrying out weighing tasks	h	1

15.7 Model-specific and Licensable Device Functions

	Semi-microbalance	High-capacity Microbalance
Model-specific device functions		
Proximity sensor	**Not** available	Available
Licensable device functions		
Use of motorized draft shield	Licensable	Licensable
Use of ionizer	Licensable	Licensable

15.8 Ionizer when Using Device in an Isolator with Protective Argon Atmosphere

Requirements for the ionizer: Deactivated (in the operating display).

15.9 Recommended Calibration Weight

15.9.1 Semi-microbalance

		MCE225S-3	MCE225P-3	MCE125S-3
	Unit	Value	Value	Value
Resolution	mg	0.01	0.01 | 0.1	0.01
Supported load	g	220	120 | 220	120
Recommended accuracy class		E2	E2	E2
External test weight	g	200	200	100

15.9.2 High-capacity Micro Balance

		MCE66S-3	MCE66P-3	MCE3S6-3	MCE36P-3
	Unit	Value	Value	Value	Value
Resolution	mg	0.001	0.001 | 0.01	0.001	0.001 | 0.01
Supported load	g	61	12 | 61	32	10 | 32
Recommended accuracy class		E2	E2	E2	E2
External test weight	g	50	50	30	30

15.10 Conditions for isoCAL Function

	Unit	Value
Possible Conditions for Triggering the isoCAL Function		
In the event of a temperature change	K	1.5
After a time interval	h	12
After successful leveling		
Only conformity-assessed devices: After interrupting the power supply		
Required Conditions for Executing the isoCAL Function		
Operating display is in weighing mode (**not** in menu)		
Alphanumeric inputs are **not** active.		
Min. time period without entry on the device	min	2
Min. time period with unchanged loading of the weighing pan	min	2
Max. loading of weighing pan, high-capacity	%	2

15.11 Data Storage Device

	Value
Maximum number of data records	150,000

15.12 Integrated Clock

	Unit	Value
Maximum deviation per month (RTC)	s	30

15.13 Backup Battery

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

15.14 Materials

Housing
Stainless steel 1.4401 | 1.4404, Aluminum
Plastic PBT | PA
Float glass Optiwhite
Control unit
Plastic PBT | PP
Float glass
Stainless steel 1.4301
Weighing pan
Top section: Titanium
Bottom section: Stainless steel, zinc oxide, brass

15.15 Cleaning Agents and Cleaning Procedures

15.15.1 Approved Cleaning Agents

	Cleaning agents and concentration					
Device Components	Ethanol, 70%	Isopropanol, 70%	Citric acid, 10%	Diluted hydrogen peroxide, 3.5%	Sodium hydroxide, 32%	Ecolab™ Klercide Sporicidal Chlorine
Draft shield						
Top door	x	x	xx	xx	-	xx
Left and right doors	x	x	xx	xx	-	x
Front panel	x	x	x	x	-	x
Components in the weighing compartment						
Weighing pan	x	x	x	x	xx	x
Shield plate	x	x	x	x	xx	x
Base plate of weighing compartment (removable)	x	x	x	x	xx	x
Rear wall of weighing compartment	xx	x	x	x	x	x
Weighing compartment support (holds the base plate of the weighing compartment)	x	x	x	x	x	x
Control unit with operating display	x	x	x	x	-	x
Back of the device						
Plastic surfaces	x	xx	x	x	x	x
Cooling element	x	xx	x	x	x	x

x Suitable
xx Suitable, may affect visual appearance of the device, does not impact mechanical stability
- **Not** suitable

15.15.2 Approved Cleaning Process

Wiping the device surfaces with a lightly moistened cloth		
Spraying the device surfaces with cleaning fluid, contact time	Min	5–10

15.16 Metrological Data

15.16.1 Semi-microbalance

		MCE 225S-3	MCE 225P-3	MCE 125S-3
	Unit	**Value**	**Value**	**Value**
Scale interval (d)	mg	0.01	0.01 | 0.1	0.01
Maximum capacity (Max)	g	220	120 | 220	120
Repeatability at 5 % load				
Standard deviation of the load values, tolerance	mg	0.015	0.015	0.015
Standard deviation of the load values, typical value	mg	0.007	0.007	0.007
Repeatability at approx. maximum capacity				
Standard deviation of the load values, tolerance	mg	0.025	0.04	0.025
Standard deviation of the load values, typical value	mg	0.015	0.02	0.015
Linearity deviation				
Tolerance	mg	0.07	0.1	0.07
Typical value	mg	0.03	0.03	0.03
Deviation when load is off-center, positions according to OIML R76				
Test weight	g	100	100	50
Tolerance	mg	0.15	0.2	0.12
Typical value	mg	0.05	0.06	0.04
Sensitivity drift of +10 °C to +30 °C	ppm/K	1	1	1
Tare-maximum capacity: Less than 100 % of maximum capacity				
Accuracy class according to Directive 2014/31/EU		I	I	I
Verification scale interval (e) according to Directive 2014/31/EU	mg	1	1	1
Minimum load (Min) according to Directive 2014/31/EU	mg	1	1	1
Minimum initial weight according to USP (United States Pharmacopeia), Chap. 41				
Optimum minimum initial weight	mg	8.2	8.2	8.2
Typical stabilization time	s	1.5	1.5	1.5
Typical measurement time	s	4	4	4

15.16.2 High-capacity Microbalance

		MCE 66S-3	MCE 66P-3	MCE 36S-3	MCE 36P-3
	Unit	Value	Value	Value	Value
Scale interval (d)	mg	0.001	0.001 | 0.01	0.001	0.001 | 0.01
Maximum capacity (Max)	g	61	12 | 61	32	10.1 | 32
Repeatability at 5 % load					
Standard deviation of the load values, tolerance	mg	0.0015	0.0020	0.0015	0.002
Repeatability at approx. maximum capacity					
Standard deviation of the load values, tolerance	mg	0.004	0.01	0.0025	0.007
Standard deviation of the load values, typical value	mg	0.0025	0.006	0.0018	0.005
Linearity deviation					
Tolerance	mg	0.02	0.02	0.012	0.015
Typical value	mg	0.005	0.008	0.005	0.006
Deviation when load is off-center, positions according to OIML R76					
Test weight	g	20	20	10	10
Tolerance	mg	0.02	0.03	0.015	0.02
Typical value	mg	0.01	0.012	0.006	0.008
Sensitivity drift between +10 °C and +30 °C	ppm/K	1	1	1	1
Tare-maximum capacity: Less than 100 % of maximum capacity					
Accuracy class according to Directive 2014/31/EU		I	I	I	I
Verification scale interval (e) according to Directive 2014/31/EU	mg	1	1	1	1
Minimum load (Min) according to Directive 2014/31/EU	mg	0.1	0.1	0.1	0.1
Minimum initial weight according to USP (United States Pharmacopeia), Chap. 41					
Optimum minimum initial weight	mg	0.82	0.82	0.82	0.82
Typical stabilization time	s	3.5	3.5 | 2.5	3.5	3.5 | 2.5
Typical measurement time	s	10	10 | 6	10	10 | 6

16 Accessories and Spare Parts

16.1 Accessories

This table contains an excerpt of accessories parts that can be ordered. For information on other products, please contact Sartorius.

Article	Quantity	Order Number
Thermal transfer | thermal printer for GLP | GMP printouts on continuous paper and labels	1	YDP30
Connection cable for operating display, length 3 m	1	YCC01-MCD3-3
Connection cable with RS232 adapter, USB-C to RS232, 9-pin	1	YCC-USB-C-D09M
Motion sensor with USB connection cable	1	YHS02USB
Inner draft shield		
Motorized	1	YDS125A
Manual	1	YDS125U
Glass insert to reduce the height of the weighing compartment	1	YDSHR
Sample holder		
Configurable for sample bulbs of up to 50 mL	1	YSH02-3
For Safe-Lock® 2 mL sample tubes	1	YSH14-3
For Safe-Lock® 5 mL sample tubes	1	YSH18-3
For bottles of up to 40 mL	1	YSH22-3
For coronary stents	1	YSH12-3
For syringes	1	YSH46-3
Filter weighing pan, including protective plate for rear wall of weighing compartment		
For filters up to 75 mm	1	YSH35-3
For filters up to 150 mm	1	YSH30-3
Weighing scoop holder	1	YSH26-3
Weighing pan		
90 mm weighing pan, slotted	1	YWP10-3
50 mm weighing pan, slotted, with protective plate for 50 mm weighing pan	1	YWP09-3
Under-pan hook for below-balance weighing	1	69MS0307
Density determination set for solids and liquids	1	YDK03MS

Article	Quantity	Order Number
Pipette calibration kit for semi-microbalances and high-capacity microbalances	1	YCP07MC
Sartorius Wedge, software for data communication between the PC and device	1	YSW02
Additional operating display (second display)	1	YSD01
Weighing table		
Weighing table made from synthetic stone, with vibration dampening	1	YWT03
Weighing table made from wood with synthetic stone	1	YWT09
Wall console	1	YWT04
Dust cover	1	YDCC2MCE
Weighing scoop made from chrome-nickel steel, (90 mm x 32 mm x 8 mm)	1	641214
Cleaning kit	1	YCK01MC

16.2 Spare Parts

This table contains a selection of the spare parts that can be ordered. For information on other products, please contact Sartorius.

Article	Quantity	Order number
Left door for draft shield (external draft shield)	1	YCCDSL
Right door for draft shield (external draft shield)	1	YCCDSR
Upper door for draft shield (external draft shield)	1	YCCDSU
Front panel for draft shield (external draft shield)	1	YCCDSF

17 Sartorius Service

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

For inquiries about the system or when contacting Sartorius Service in the event of a malfunction, ensure that you have the device information, e.g., serial number, hardware, firmware, configuration, close at hand so you can pass it on to Sartorius Service. Consult the information on the manufacturer's ID label and in the "Device Information" menu.

18 Conformity Documents

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

M

The Declaration of Conformity supplied here is for conformity-assessed (verified) balances for use in the EEA. Please keep the enclosed Conformity Declaration in a safe place.

19 Trademark Information

Ecolab™ Klercide is a registered trademark of Ecolab Europe GmbH.

Original

EG-/EU-Konformitätserklärung
EC / EU Declaration of Conformity

Hersteller *Manufacturer*	**Sartorius Lab Instruments GmbH & Co. KG** **37070 Goettingen, Germany**

erklärt in alleiniger Verantwortung, dass das Betriebsmittel
declares under sole responsibility that the equipment

Geräteart	**Elektronische Semi-Mikrowaage und Hochlast-Mikrowaage | Netzgerät | Bewegungssensor| Klimamodul | Automatischer motorischer Innenwindschutz**
Device type	***Semi-micro balance and high capacity micro balance*** **|** ***Power Supply*** **|** ***Motion sensor*** **|** ***Climatic module*** **| Automatic motorized inner draft shield**
Modelle *Models*	**MCA**vw-3x-**D**, **MCE**vw-3x-**D** | **ZAG65US15** | **YHS02SB** | **YCM20MC, YCM20MC-DAKKS | YDS125A** **v** = 36, 66, 116, 226, 225, 125 **w** = S, P; **x** = S00, S01, CEU, CFR, CCN, OBR, OIN;

in der von uns in Verkehr gebrachten Ausführung allen einschlägigen Bestimmungen der folgenden Europäischen Richtlinien entspricht und die anwendbaren Anforderungen folgender harmonisierter Europäischer Normen einschließlich deren zum Zeitpunkt der Erklärung geltenden Änderungen erfüllt:

in the form as delivered fulfils all the relevant provisions of the following European Directives and meets the applicable requirements of the harmonized European Standards including any amendments valid at the time this declaration was signed listed below:

	EMV | EMC	**RoHS**	**Maschinen | Machines**
Richtlinie *Directive*	2014/30/EU	2011/65/EU	2006/42/EG 2006/42/EC
Norm(en) *Standard(s)*	EN 61326-1:2013	EN IEC 63000:2018	EN ISO 12100:2010 EN 61010-1:2010 +A1:2019 +AC2014-04

Die Person, die bevollmächtigt ist, die technischen Unterlagen zusammenzustellen:
The person authorised to compile the technical file: Sartorius Lab Instruments GmbH & Co. KG
Electronics & Product Compliance
37070 Goettingen, Germany

Sartorius Lab Instruments GmbH & Co. KG
Goettingen, **2023-04-20**

Mario Hespe
Managing Director

Halil Yildirim
Product Compliance Manager (SLI)

*: angewandte, jedoch für Maschinen nicht harmonisierte Norm /
applied standard, which however is not harmonized for machines

Doc: 2599872-00 SLI20CE005-00.de,en 1 / 1 PMF: 2369813 OP-113_fo1_2020.03.03

Original

UK Declaration of Conformity

Manufacturer Sartorius Lab Instruments GmbH & Co. KG
37070 Goettingen, Germany

declares under sole responsibility that the equipment

Device type **Semi-micro balance and high capacity micro balance | Power Supply | Motion sensor | Climatic module | Automatic motorized inner draft shield**

Models **MCA**vw-3x-**D**, **MCE**vw-3x-**D** | **ZAG65US15** | **YHS02SB** | **YCM20MC, YCM20MC-DAKKS | YDS125A**

v = 36, 66, 116, 226, 225, 125
w = S, P;

x = S00, S01, CEU, CFR, CCN, OBR, OIN;

in the form as delivered fulfils all the relevant provisions of the following British Regulations and meets the applicable requirements of the British Designated Standards including any amendments valid at the time this declaration was signed listed below:

The Electromagnetic Compatibility Regulations 2016
UK Statutory Instruments 2016 No. 1091

BS EN 61326-1:2013

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012; UK Statutory Instruments 2012 No. 3032

BS EN IEC 63000:2018

The Supply of Machinery (Safety) Regulations 2008
UK Statutory Instruments 2008 No. 1597

BS EN ISO 12100:2010, BS EN 61010-1:2010+A1:2019*)

The person authorised to compile the technical file:

Sartorius UK Ltd.
Longmead Business Centre, Blenheim Road
KT19 9 QQ Epsom, Surrey, UK

Sartorius Lab Instruments GmbH & Co. KG
Goettingen, 2023-04-20

Mario Hespe
Managing Director

Halil Yildirim
Product Compliance Officer (SLI)

*: applied standard, which however is not harmonized for machines

20 Index

A

Accessories....11, 19, 87
  Connecting....50
Acclimatization....48, 80
Adjustment....56
  Calibration Weight....81
  With isoCAL Function....57
Ambient Conditions....78

B

Backup Battery....82
Balance. See Device Description
Battery. See Backup Battery

C

Cable. Siehe Connection Cable
Calibration....56
Calibration Weight....81
Cleaning
  Cleaning the Device....66
  Preparation....65
Cleaning Agents and
Cleaning Procedures....84
Clock....82
Conduct in an Emergency....11
Conformity....89
Conformity-assessed Devices....19
Connection cable
  For Operating Display....49
Connection Cable
  For Operating Display....46
  Risk of tripping....12
Connections....16
Control unit
  Attaching or Removing....45
  Connection cable for
  operating display....46
  Setting up....48
Control Unit
  Connection Cable for
  Operating Display....49
Covers....18

D

Data Storage Device....82
Decommissioning....73
Device
  Start-up and Shut-down....51
Device Description....13
  Components in the Weighing
  Compartment....15
  Connections....16
  Draft shield....14
Device Overview....13
Dimensions and Weights....77
Disposal....76
Draft shield
  Dismantling....65
  Mounting....47
  Overview....14
Draft Shield, Manual
  Opening and Closing....54
Draft shield, motorized
  Saving Functions....53
Draft Shield, Motorized
  Opening or Closing....54

E

Electrical Equipment
  Connection Point for
  Power Supply Unit and
  Power Supply Cable....11
  Interfaces....80
  Power Supply....79
  Power Supply Unit and
  Power Supply Cable....11
  Safety and Electromagnetic
  Compatibility....79
Electromagnetic compatibility....79
Emergency....11
Error. See Malfunctions

F

Foreseeable Misuse....9
Functionality of the Device Parts....10

G

Getting Started....49
Glass Breakage....12

I

Installation....44
Installation Conditions....77
Intended Use....9
  Modifications to the Device....9
  Operating Conditions for the
  Device....9
  Repairs and Maintenance
  on the Device....10
Interfaces....80
Ionizer....82
  Activating, Deactivating,
  or Configuring....52
  Starting the Ionization Process..62
isoCAL Function
  Adjustment....57
  Conditions....82
  Switch-off....52

L

Leveling....55
Licensable device functions....24
Licensing....52
Linearization....56

M

Maintenance....10
Maintenance Schedule....67
Malfunctions....69
Materials....83
Metrological Data....85
Misuse....9
Models....7
Modifications to the Device....9

O

Operating Conditions
for the Device....9
Operation....54
Operation in an Isolator with
Protective Argon Atmosphere....80

P

Performing an Update 68
Performing a Software Update 68
Performing System Settings..... 51
Placing device on its side
and installing 46
Power supply 49, 79
Power Supply Unit and
Power Supply Cable 11
  Connection Point..... 11
  Mounting 49
  Power Supply 49
Print
  Results of the Adjustment
  Process..... 61
  Weighing Results with
  ID Marking..... 62
Printing Results 61
Protection class..... 78
Protective Caps..... 18

Q

Qualifications of Personnel..... 10

R

Related Documents 7
Repairs and Maintenance
on the Device 10
Re-starting the System 67
Running Applications
(Examples)..... 63

S

Safety Information on the Device ... 10
Safety of Electrical Equipment 79
Sartorius Service 89
Scope of Delivery..... 44
Selecting an
Installation Site 45, 77, 78
Spare Parts 88
Start-up..... 51
Storage and Shipping..... 75
Storage Conditions..... 78
Switch-off..... 51
Symbols on the Device 10
Symbols Used 8

T

Target Groups
  Description..... 7
  Qualifications of Personnel 10
Technical data 77
Transport 12, 74

U

Unpacking 45

W

Wait times..... 80
Warm-up Time..... 54, 80
Weighing..... 61
Weighing pan..... 15
  Inserting 47
  Removing 66

Sartorius Lab Instruments GmbH & Co. KG
Otto-Brenner-Strasse 20
37079 Goettingen, Germany

Phone: +49 551 308 0
www.sartorius.com

The information and figures contained in these instructions correspond to the version date specified below.
Sartorius reserves the right to make changes to the technology, features, specifications and design of the equipment without notice.
Masculine or feminine forms are used to facilitate legibility in these instructions and always simultaneously denote all genders.

Copyright notice:
These instructions, including all components, are protected by copyright.
Any use beyond the limits of the copyright law is not permitted without our approval.
This applies in particular to reprinting, translation and editing irrespective of the type of media used.

Last updated:

12 | 2023

© 2023

Sartorius Lab Instruments GmbH & Co. KG
Otto-Brenner-Str. 20
37079 Goettingen, Germany

NT | Publication No.: WMC6030-e231202