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Operating instructions
Moisture analyser

KERN DIS

Type TDIS-A

Version 2.0

2026-01

en

TDIS-A-BA-e-2620

en

KERN DIS

Version 2.0 2026-01

Operating instructions
Moisture analyser

Contents

1 Technical data

KERN	DIS 50-4	DIS 100-3
Item number / Type	TDIS 50-4-A	TDIS 120-3-A
Weighing range (max)	50 g	120 g
Readability (d)	0.0001 g	0.001 g
Readability moisture	0.0001 %	0.001 %
Reproducibility weighing 2 g	0.05 %	0.1 %
Reproducibility, weighing range 10 g	0.02 %	0.03 %
Tare range	50 g	120 g
Minimum weight (min)	200 mg	200 mg
Warming time	30 min	
Temperature range	30–175 °C	
Shutdown criterion	• Automatic • Manual • User-defined	
Heating profiles	• Standard drying • Gentle drying • Fast drying	
Result displays	%M, %D, %R (ratio), Gm/Lt, %M Atro, %D Atro	
Heating unit	Infrared halogen	
Program memory	40 methods	
Data memory	Storage of the last 1000 results	
Statistics	Method or batch storage of more than 9,999,999 data statistics	
Standby temperature	30–100 °C	
Interface	RS232, USB	
Print	GLP-compliant, user-defined	
Display	LCD with backlight	
Power	220–240 V, 50/60 Hz	
Power consumption (watts)	Max 415	
Housing dimensions (mm)	211 x 342 x 187	
Weight	5 kg	

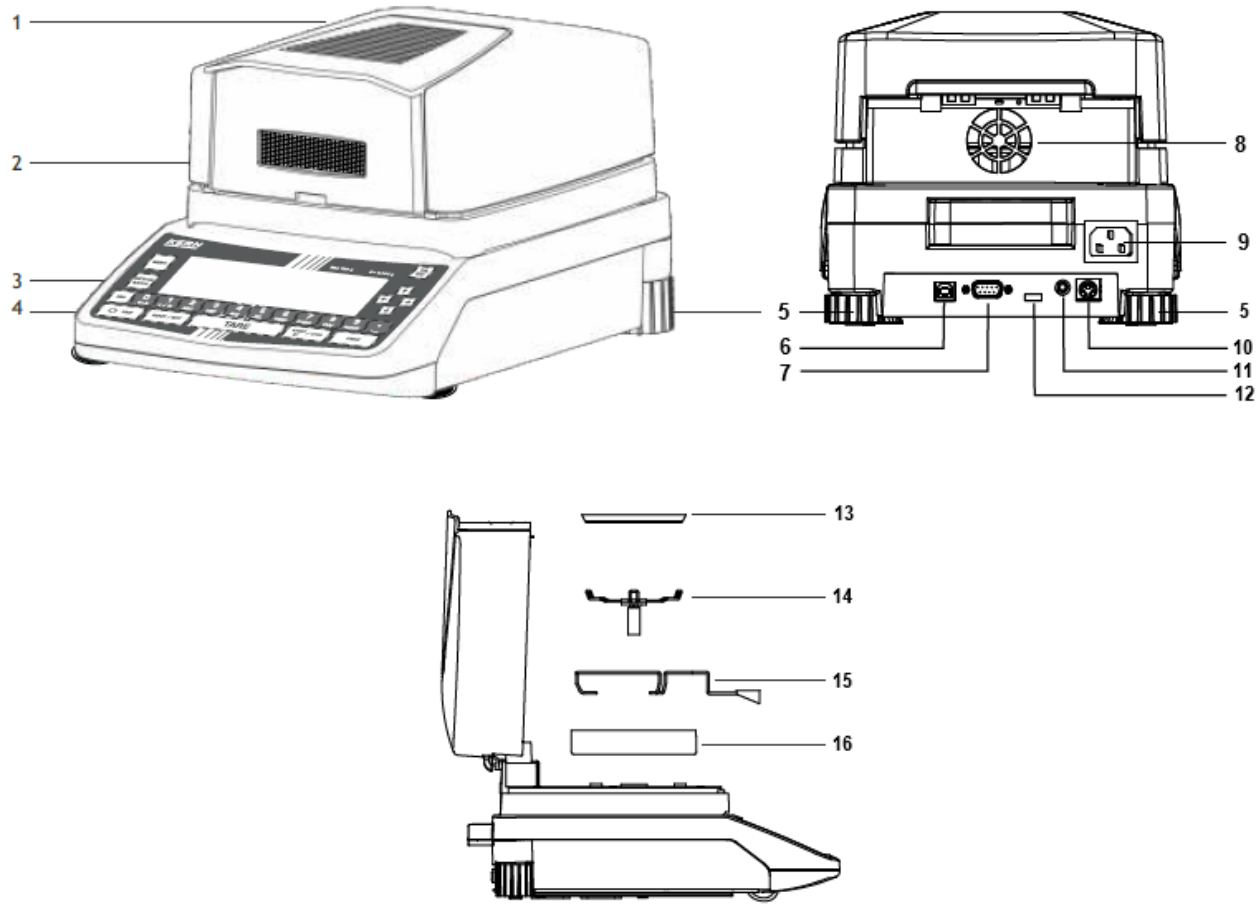
2 Declaration of conformity

The current EC/EU declaration of conformity can be found online at:

www.kern-sohn.com/ce

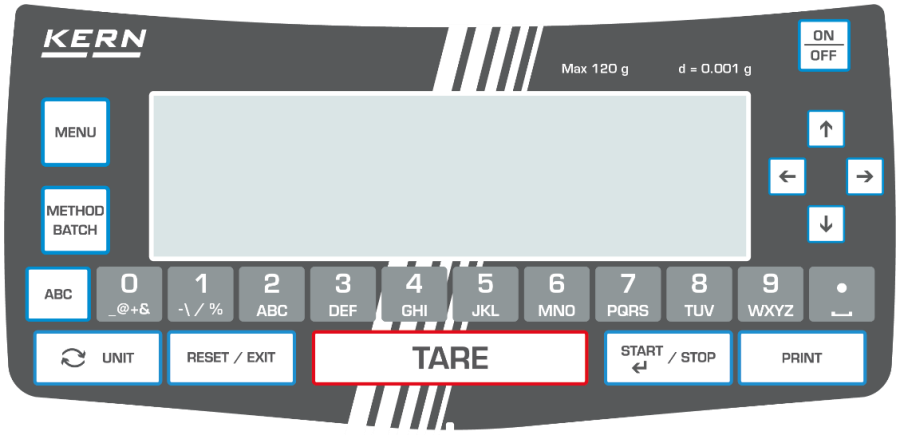
3 Device overview

3.1 Components



Item	Designation	Item	Designation
1	Ventilation grille	9	Mains connection
2	Cover	10	PS2 connection
3	Display	11	Connection for foot switch
4	Keyboard	12	Adjustment switch
5	Adjustable feet	13	Sample tray
6	USB port	14	Weighing cross
7	RS232 connection	15	Sample tray holder
8	Fan	16	Wind shield

3.2 Controls

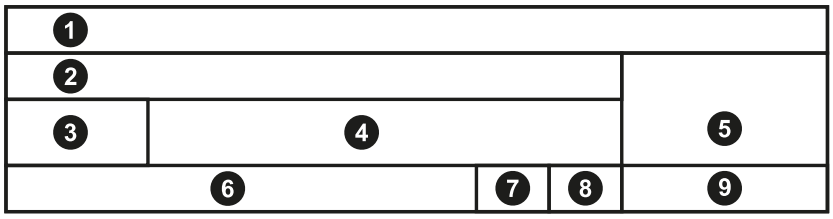


3.2.1 Keyboard overview

Key	Designation	Function
ON / OFF	**[ON/OFF]**	Switch on / Standby
MENU	**[MENU]**	• Open menu (press and hold for approx. 2 seconds) • Short press: Go-To function→ By default, the main menu opens (can be changed in the soft key settings)
METHOD BATCH	**[METHOD/BATCH]**	• Open method list (short press) • Open batch list (press and hold for approx. 2 seconds – only active if the BATCH-WISE storage method is enabled)
ABC	**[ABC]**	Switch between numbers and characters (inactive during the drying process)
0 _@+& … 9 WXYZ	**[NUM]**	Numbers and characters (press **[ABC]** to switch)
• ␣	**[POINT/SPACE]**	If **[ABC]** has NOT been activated: • Set decimal point (first short press) • Space (second short press) If **[ABC]** has been activated, in sequence: • Space • : • * • Decimal point

Key	Designation	Function
	**[↑]**	• Navigate up one menu level • Display statistics for the result
	**[→]**	• Activate menu level • If **[←]** was pressed previously: Scroll through results
	**[↓]**	• Navigate down menu level • Exit statistics view
	**[←]**	• Return to previous menu level • Display previous results (in descending chronological order)
	**[TOGGLE]**	• Change drying units (only active in drying mode) • Change and save ID (only active in pre-analysis mode)
	**[RESET/EXIT]**	• Exit function is available in the menu and reset function is available after the process Exit function: • Return to pre-analysis mode Reset function: • Return to weighing mode
	**[TARE]**	• Pre-analysis mode: Tare the weight (with container) or zero the balance (unloaded weighing pan) • In the method list: Delete • Backspace key for alphanumeric entry and delete key for user ID, password and batch ID • Key is deactivated during drying (except for the "Steps" heating profile – here, the information display can be opened with the key) • Remove parameter from print format
	**[START/STOP & ENTER]**	• Start/stop drying process • Confirm numeric or alphanumeric values
	**[PRINT]**	Print data

3.2.2 Advertisement overview



Item	Advertisement	Description
1	01:MILK PWDR	Method no. and name (maximum 10 characters)
	1:JUL 14	Batch no. and name (maximum 10 characters)
	110°C	Heating profile symbol and set temperature
	AUTO	Shutdown criterion symbol
2	0% 10 %	Capacity bar (load on the balance)
3		Stability indicator
		Minus
4	2.060	Weight values
	27.0 l	Moisture values
5		Heating chamber closed
		Heating chamber open
	100°C	Standby temperature
		Sample preparation
		Sample ready
		Sample is being heated
	F END	Measurement interrupted
	END	Shutdown criterion reached

Pos.	Display	Description
6	SET METHOD [START]	Information about next step
	00:23:56	Current analysis time
	119°C	Current heating chamber temperature
	93MG/MIN	Moisture loss in the last minute
7	1234	User-defined lines→ configurable is displayed inverted (see chapter9.4.8)
8	ΣMW	Statistics symbol
9		Data transfer

4 Basic information (general)

4.1 Intended use

The device you have purchased is designed for the fast and reliable determination of material moisture in liquid, porous and solid substances using the thermogravimetric method.

4.2 Improper use

- Avoid impacts and overloading the device beyond the specified maximum load (Max), minus any tare load that may already be present. This could damage the integrated scales.
- Never operate the device in potentially explosive atmospheres. The standard version is not explosion-proof.
- The device may only be used in accordance with the specifications described. Any other areas of use/applications must be approved in writing by KERN.
- Do not use samples whose heating could lead to dangerous chemical reactions or explosions. Furthermore, do not use samples that produce toxic gases when heated.
- Keep flames away from the device.
- Do not use the device in environments with flammable gases.
- Only connect the device to a properly installed power outlet that meets the specifications of the device.
- The device must not be modified in any way. This can lead to incorrect results, safety hazards and destruction of the device.
- Keep moisture away from the device.
- Do not look into the light of the halogen lamp to protect your eyes.
- Handle glass components with care to avoid injury.
- Do not touch the heating cover, halogen lamp, glass housing, sample tray, sample holder or the sample without appropriate protective equipment to avoid burns.
- After measurement, the components of the device may be very hot. Therefore, only touch the device using the appropriate handles and wear appropriate protective equipment.
- Only use the device in a well-ventilated environment.
- Do not place the device in direct sunlight.
- Only use original accessories.

4.3 Warranty

The warranty shall be void if

- failure to observe our specifications in the operating instructions
- Use outside the described applications
- Modification or opening of the device
- Mechanical damage and damage caused by media, liquids natural wear and tear
- Improper installation or electrical installation
- Overloading of the measuring mechanism

4.4 Test equipment monitoring

As part of quality assurance, the metrological properties of the balance and any test weights must be checked at regular intervals. The responsible user must define a suitable interval for this as well as the type and scope of this test. Information regarding the test equipment monitoring of scales and the test weights required for this is available on the KERN website (www.kern-sohn.com). Test weights and scales can be calibrated quickly and cost-effectively at KERN's accredited calibration laboratory (traceable to the national standard).

5 Basic safety instructions

5.1 Observe the instructions in the operating manual

⇨ Read the operating instructions carefully before installation and commissioning, even if you already have experience with KERN balances.

5.2 Training of personnel

The device may only be operated and maintained by trained personnel.

6 Transport and storage

6.1 Inspection upon receipt

Please check the packaging immediately upon receipt and the device upon unpacking for any visible external damage.

6.2 Packaging/return transport

⇨ Keep all parts of the original packaging for any necessary return transport.

⇨ Only use the original packaging for return transport.

⇨ Before shipping, disconnect all connected cables and loose/movable parts.

⇨ Secure all parts against slipping and damage.

7 Unpacking, installation and commissioning

7.1 Installation location, place of use

The device is designed to deliver reliable results under normal operating conditions.

You can work accurately and quickly if you choose the right location for your device.

Please note the following at the installation site:

- Place the device on a stable, level surface free from vibrations.
- Avoid extreme heat and temperature fluctuations, e.g. by placing the device next to a heater or in direct sunlight.
- Protect the device from direct draughts from open windows and doors.
- Avoid vibrations during measurement.
- Protect the device from high humidity, vapours and dust.
- Do not operate in areas where there is a risk of explosion or in areas where there is a risk of explosion due to gases, vapours, mists or dust.
- Avoid overheating by positioning the device so that there is sufficient airflow on all sides.
- Do not expose the device to high humidity for long periods of time. Unauthorised condensation (condensation of air humidity on the device) may occur if a cold device is brought into a significantly warmer environment. In this case, allow the device to acclimatise at room temperature for approx. 2 hours after disconnecting it from the mains.
- Keep chemicals (e.g. liquids or gases) that could attack and damage the inside or outside of the scales away from the device.

7.2 Unpacking and checking

Remove the device and accessories from the packaging, remove the packaging material and set up the device at the intended workstation. Check that all parts included in the scope of delivery are present and undamaged.

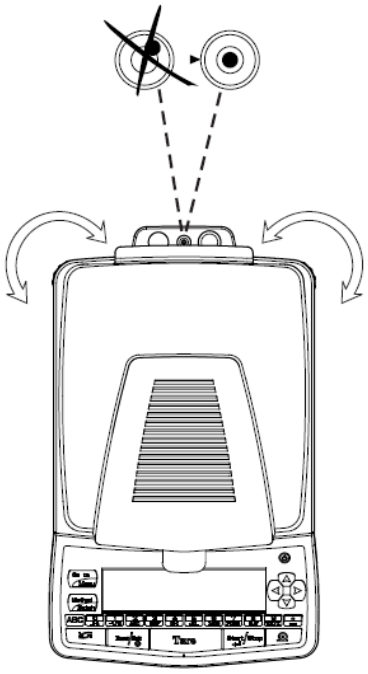
Scope of delivery / Standard accessories:

- Moisture analyser
- 50 aluminium sample trays
- Sample tray holder
- Weighing cross
- Power cable
- Wind shield

7.3 Assembly, installation , and levelling

Levelling:

1. Set up the device at the place of use and ensure that it is level.
2. Level the device using the foot screws (1) until the air bubble in the spirit level is within the specified circle (2).
3. Check the levelling regularly. Levelling must be repeated after each change of location.



7.4 Mains connection

The power supply is provided by the mains cable supplied.

The device may only be connected to the mains if the information on the device (sticker) and the local mains voltage are identical.

The protective effect must not be negated by using an extension cable without a protective earth conductor. If the power supply comes from mains without a protective earth connection, equivalent protection must be provided by a specialist in accordance with the applicable installation regulations.

Important:

- ➢ Check the power cord for damage before use.
- ➢ Ensure that the power supply unit does not come into contact with liquids.
- ➢ The mains plug must be accessible at all times.
- ➢ Only use the original power supply unit.

Connecting the device to the power supply:

1. Plug the power cord into the power connection of the moisture analyser
2. Plug the mains plug into the socket

7.5 Connecting peripheral devices

Before connecting or disconnecting additional devices (printers, PCs) to the data interface, the moisture analyser must be disconnected from the mains.

Only use accessories and peripheral devices from KERN, as these are optimally matched to the device.

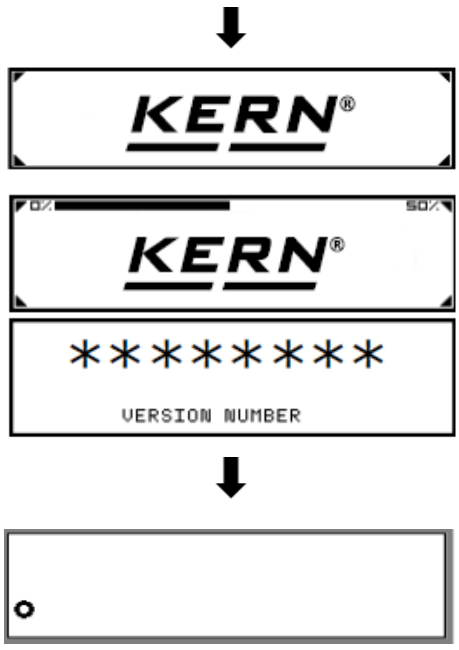
7.6 Commissioning

In order to obtain accurate results, the moisture analyser must have reached its operating temperature (see warm-up time in section 1). The moisture analyser must be connected to the power supply during this warm-up time.

The accuracy of the moisture analyser depends on the local gravitational acceleration.

It is essential to observe the instructions in the chapter on adjustment.

Putting the device into operation:



⇨ Connect the device to the power supply

⇨ The device starts up automatically and displays a sequence of messages:

- Manufacturer logo
- Loading bar
- Software version number

⇨ After booting up, the device switches to standby mode

8 Adjustment

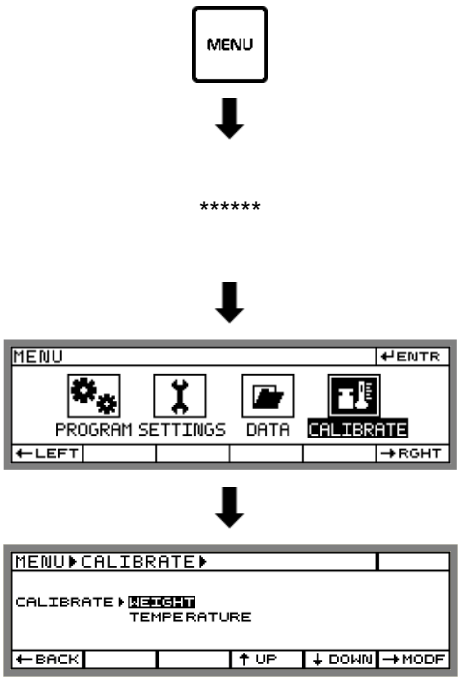
Weight adjustment of the integrated balance is not absolutely necessary for correct moisture determination, as this measurement is only relative. The instrument determines the weight of the sample before and after the drying process, and the moisture content is determined based on the ratio between wet and dry weight.

However, the instrument should be adjusted if required by the quality system you are using.

- Ensure stable environmental conditions. A warm-up time (see section 1) is required for stabilisation.
- Perform the adjustment with the sample dish in place. Ensure that there are no objects in the sample dish.
- Avoid vibrations and air currents.
- Perform the adjustment as close as possible to the maximum load. Information on test weights can be found at www.kern-sohn.com.

8.1 Adjusting the weight

Open adjustment settings:



⇨ Press [MENU]

⇨ If password protection has been activated: Enter password (for settings, see chapter9.3.7)

⇨ Select <CALIBRATE>

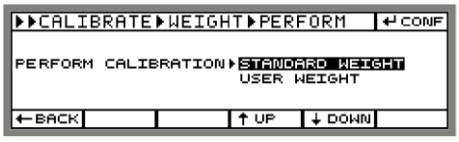
⇨ Select <WEIGHT>.

- The adjustment can be cancelled at any time with [RESET / EXIT] (<CALIBRATION ABORTED!!> is displayed). After cancellation, the device returns to <PERFORM CALIBRATION>.
- In the menu <MENU→ CALIBRATE→ WEIGHT>, [METHOD / BATCH] can be used to display the date of the last weight adjustment.

8.1.1 Adjustment with standard weight

Select adjustment method:

⇨ Select <PERFORM CALIBRATION>.

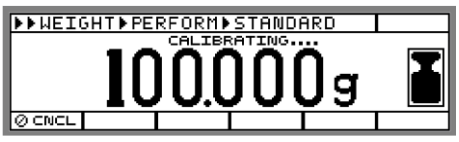


⇨ Select <STANDARD WEIGHT>.

Start calibration:

⇨ Remove any samples from the moisture analyser (otherwise an error message will appear).

⇨ The required adjustment weight is displayed.



⇨ Place the calibration weight in the centre.

⇨ As soon as a stable weight is reached, <CALIBRATING…> appears on the display.

⇨ Once the weight has been saved, <REMOVE THE CALIBRATION WEIGHT> and the zero display appear.

⇨ Remove the calibration weight within 45 seconds (after 45 seconds, an error will appear because the device cannot determine the zero range).

⇨ Once the weight has been removed and a stable value has been reached, <CALIBRATING…> appears.

⇨ The moisture analyser adjusts the zero display.

⇨ If the adjustment is successful, <CALIBRATION SUCCESSFUL!!> appears.

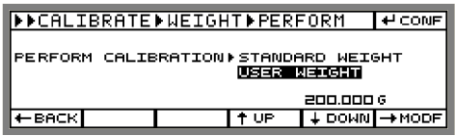
Error messages:

Display	Possible cause	Remedy
	Incorrect adjustment weight	Use the correct adjustment weight
	Error during adjustment	Restart adjustment

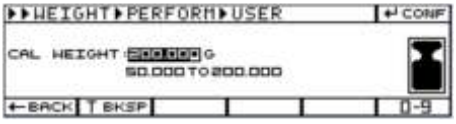
8.1.2 Adjustment with user-defined weight

Select calibration method:

⇨ Select <PERFORM CALIBRATION>.



⇨ Select <USER WEIGHT>.



⇨ Enter the user-defined calibration weight.

Note: The adjustment weight may not exceed 25% of the maximum weighing capacity. If the weight entered exceeds this range, an error message will appear for 2 seconds. The weight must then be re-entered.

Start calibration:

...

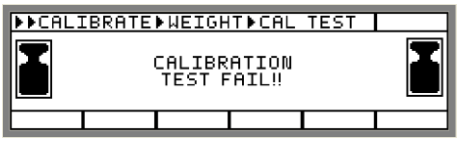
⇨ The adjustment is then carried out as with the standard weight in chapter "8.1.1 " from "Start adjustment".

8.1.3 Calibration test

Select calibration test:

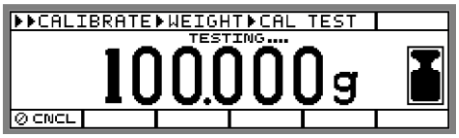
⇨ Select <PERFORM CALIBRATION>.

Start calibration test:



⇨ Remove any samples from the moisture analyser (otherwise an error message will appear).

⇨ The required calibration weight is displayed.

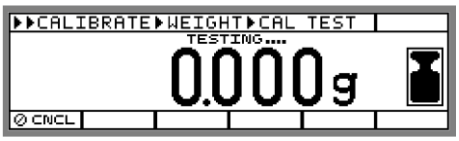


⇨ Place the calibration weight in the centre.

⇨ As soon as a stable weight is reached, <TESTING…> appears on the display.

⇨ Once the weight has been saved, <REMOVE THE CALIBRATION WEIGHT> and the zero display appear.

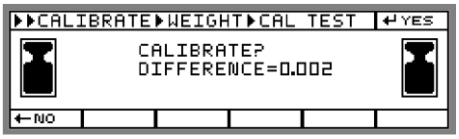
⇨ Remove the adjustment weight within 45 seconds (after 45 seconds, an error will appear because the device cannot determine the zero range).



⇨ Once the weight has been removed and a stable value has been reached, <TESTING…> appears.

⇨ The moisture analyser tests the zero display.

Variant A: Difference is < 3d

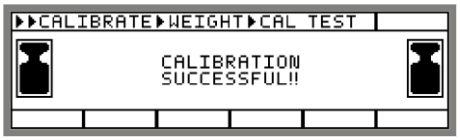


⇨ After the adjustment test, the difference between the internal adjustment values and the adjustment weight is displayed.

⇨ In variant A, the difference is less than 3d. No adjustment is suggested.

Variant B: Difference is > 3d

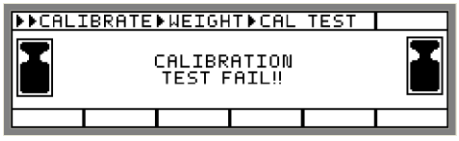
⇨ In variant B, the difference is greater than 3d. An adjustment is suggested.



⇨ Press [ENTER] to end the adjustment test and <CALIBRATION SUCCESSFUL!!> appears for 2 seconds.

⇨ The device then returns to the settings.

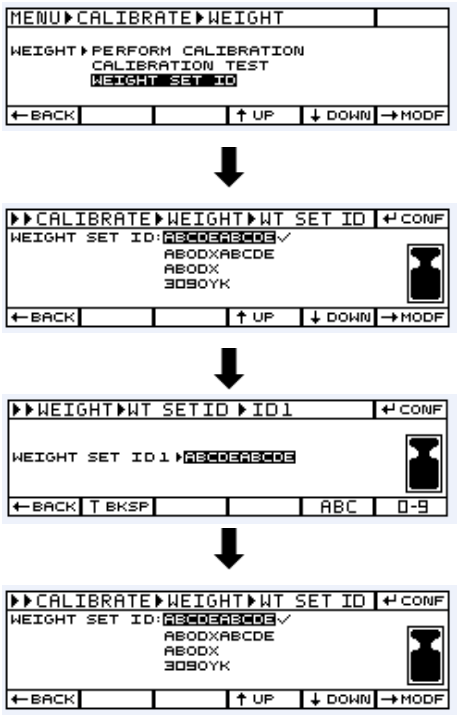
Error messages:

Display	Possible cause	Remedy
	Incorrect adjustment weight	Use the correct adjustment weight
	Error during adjustment test	Restart the adjustment test

8.1.4 Assign adjustment weight ID

This setting allows you to assign a number to the calibration weight. This number can be printed out with the report. This makes it possible to track which weight was used.

Enter ID:



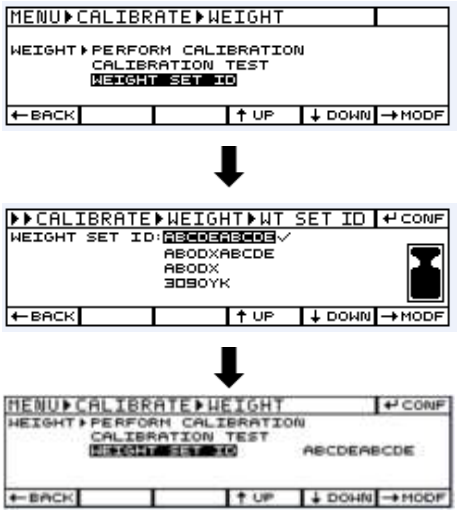
⇨ Select <WEIGHT SET ID>.

⇨ Press [➔] to adjust the ID.

⇨ Enter ID and confirm with [START/STOP].

⇨ The device returns to the ID overview.

Select ID:



⇨ Select <WEIGHT SET ID>.

⇨ Select the desired ID and confirm with [START / STOP].

⇨ The selected ID is now active.

8.2 Adjusting the temperature

⚠ CAUTION

Risk of burns from hot surfaces

Touching hot surfaces can cause burns and scarring

Parts of the device become very hot during temperature adjustment, heating tests and measurements. Therefore, never touch the lid, halogen lamp, glass parts, parts inside the chamber, tray and tray holder, or samples without wearing adequate protective clothing.

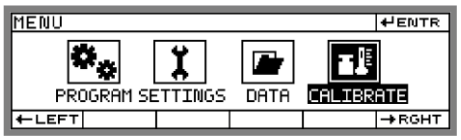
A temperature calibration set is required to adjust the temperature.

Open adjustment settings:

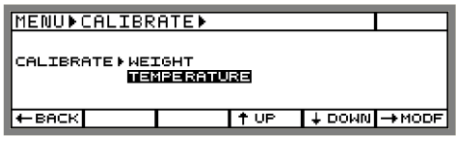
⇨ Press [MENU]

******

⇨ If password protection has been activated: Enter the password (for settings, see chapter9.3.7)



⇨ Select <CALIBRATE>.

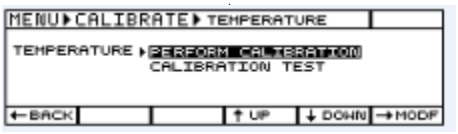


⇨ Select <TEMPERATURE>.

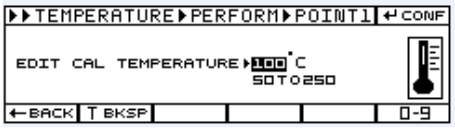
- The adjustment can be cancelled at any time with [RESET / EXIT] (<CALIBRATION ABORTED!!> is displayed). After cancellation, the device returns to <PERFORM CALIBRATION>.
- In the <MENU→ CALIBRATE→ WEIGHT> menu, the date of the last weight calibration can be displayed using [METHOD / BATCH].

8.2.1 Perform temperature adjustment

Start adjustment:



⇨ Select <PERFORM CALIBRATION>.

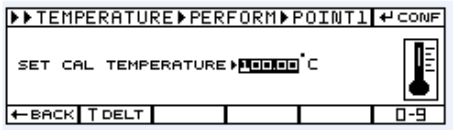


⇨ Enter the first temperature point. Note: If a value has already been entered, the digits must first be deleted with **[TARE]** before a new entry can be made.

⇨ Enter the second temperature point (as above).

⇨ Press [START / STOP].

⇨ Calibration starts with temperature point 1.



⇨ After 10 minutes, the value must be read from the temperature calibration set and entered manually into the device (the last value entered is displayed by default).

⇨ Confirm the entry with [START / STOP].

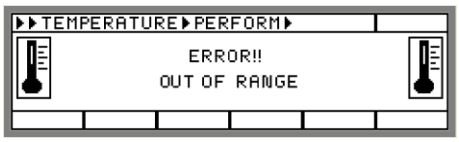
⇨ Adjustment of the second temperature point is started.

⇨ Enter the measured value from the temperature calibration set and confirm with [START / STOP].

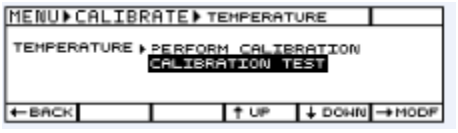
⇨ After confirming the second temperature point, <CALIBRATION SUCCESSFUL!!> appears and the adjustment is completed.

The adjustment can be started directly at <PERFORM CALIBRATION> with [START / STOP]. In this case, the last stored temperature points are used.

Error messages:

Display	Possible cause	Remedy
	The difference between the measured temperature and the temperature recorded by the system at one or both points is 20% or more.	Contact KERN service
	Error during adjustment	Restart adjustment

8.2.2 Temperature adjustment test



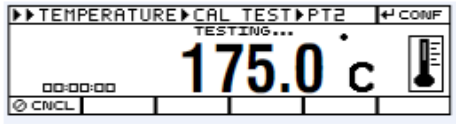
⇨ Select <CALIBRATION TEST>.

⇨ Press [START / STOP].

⇨ The adjustment test is started with temperature point 1 (temperature points are entered in <PERFORM CALIBRATION>, see chapter8.2.1).

⇨ After 10 minutes, the value must be read from the temperature calibration set and entered manually into the device (the last value entered is displayed by default). Note: If a value has already been entered, the digits must first be deleted with **[TARE]** before a new entry can be made.

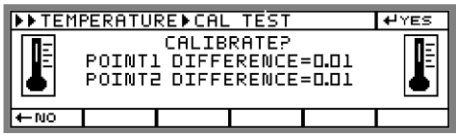
⇨ Press [START / STOP] to confirm the entry.



⇨ Adjustment of the second temperature point is started.

⇨ Enter the measured value of the temperature calibration set and confirm with [START / STOP].

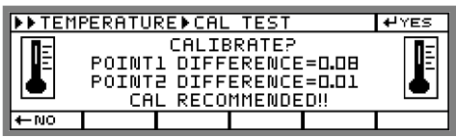
Variant A: Difference is < 1 %



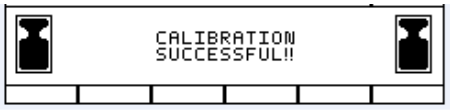
⇨ After the adjustment test, the difference between the internal temperature values and the measured temperature is displayed.

⇨ In variant A, the difference is less than 1%. No adjustment is suggested.

Variant B: Difference is > 1%



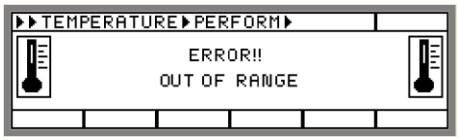
⇨ In variant B, the difference is greater than 1%. An adjustment is suggested.



⇨ Press [ENTER] to end the adjustment test and <CALIBRATION SUCCESSFUL!!> appears for 2 seconds.

⇨ The device then returns to the settings.

Error messages:

Display	Possible cause	Remedy
	The difference between the measured temperature and the temperature recorded by the system at one or both points is 20% or more.	Contact KERN Service
	Error during calibration test	Restart the calibration test

9 Menu

9.1 Navigation in the menu

9.1.1 Open/exit menu

Open menu

⇨ Short press: Quick access to defined menu (for settings, see chapter9.3.7)

⇨ Long press: Open main menu

⇨ If password protection has been activated: Enter password (for settings, see chapter9.3.7)

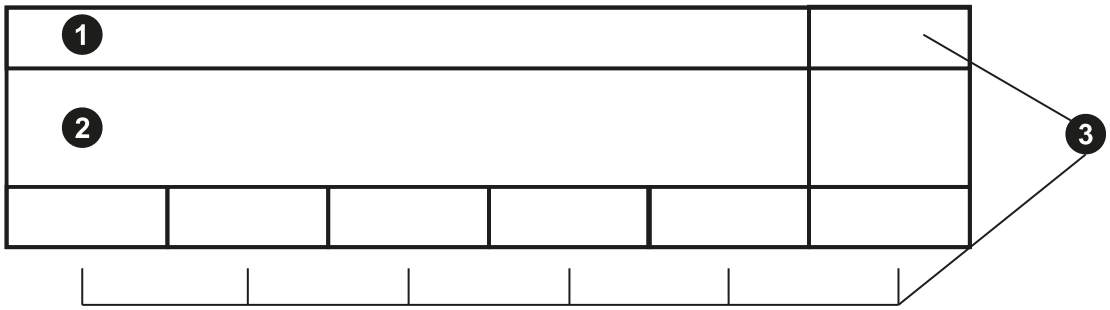
⇨ Make settings

Exit menu

MENU	Return to pre-analysis mode
RESET / EXIT	Return to pre-analysis mode
←	Go back step by step in the menu structure

9.1.2 Menu structure and operation

Menu structure



1: Current location in the menu structure

2: Settings menu

3: Operating functions

Displayed operating function	Description	Corresponding button
↵ CONF	Confirm	START / STOP ↵
↑ UP	Up	↑
↓ DOWN	Down	↓
0-9 ABC	(activated control function is highlighted in black)	ABC
→MODF	Next	→
←BACK	Back	←
T DELT	Delete entry	TARE
COPY	Copy methods	UNIT

9.2 Main menu

After opening the main menu, the user has the following 4 levels to choose from

- Methods
- System settings
- Data
- Calibrate

9.3 Submenu: System Settings (SETTINGS)

- Default settings are marked with an *.
- Some settings require a password to be entered. This ensures that unauthorised persons cannot make any changes.

  The password is: CITIMB200

Settings				Description	Chapter
Language	• English (UK)* • English (USA)			Select language	-
Date & Time	Date	Set Date	• (dd/mm/yy)* • (mm/dd/yy)	Format either day-month-year or month-day-year	9.3.1
	Time	Set Time format	• 12 hour* • 24 hour	Format either 12 or 24 hours	
		Set Time		Numeric time input	
Data Storage Mode	• Method-wise* • Batch-wise			Select storage method	9.3.2
Auto Zero Tracking	• On* • Off			Enable/disable automatic zero tracking	9.3.3
Weight Filter	• 1 • 2* • 3 • 4			Display filter (1 = fastest, 4 = slowest)	9.3.4

Settings				Description	Chapter
Interface	Serial Port (RS232)	Peripherie	• Printer • PC*		11.1
		Baud Rate	• 600 • 1200 • 2400 • 4800 • 9600* • 19200	Baud rate setting	
		Data Bits	• 7 Bits • 8 Bits*	Number of data bits	
		Parity	• None* • Even • Odd • Mark Space	Parity	
		Stop bits	• 1 bits* • 2 bits	Number of stop bits	
	USB			Select USB	
Print format				Print format	11.2
User ID	• User ID 1 (Default: Bank) • User ID 2 • User ID 3 • User ID 4			Alphanumeric entry (maximum 16 characters)	9.3.5
Foot Key	• Start / Stop • Tare* • Print • Toggle			Select function for foot switch	9.3.6

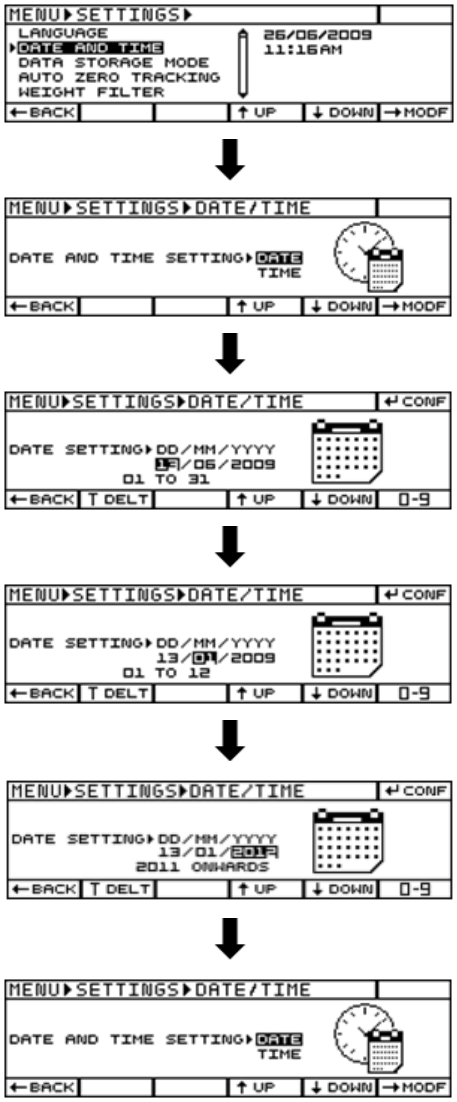
Settings				Description	Chapter
Soft Key	• Menu* • Setting • Data • Calibration • Standard Weight Calibration • Print Format			Set shortcut for **[MENU]**	9.3.7
Auto Off	On	1– 60 min		Set automatic switch-off time	9.3.8
	Off*			Automatic switch-off function deactivated	
Audio-Visual	Display	Invert • On • Off*			9.3.9
		Font • 1* • 2			
	Graph	• On* • Off			
	Buzzer	• On* • Off			
Heater Test	Perform Heater Test			Perform heater test	9.3.10
	Modify Temp			Set temperature (30–175 °C)	
Balance Info				Display device information	9.3.11
Reset Settings				Restore factory settings (password required: CITIMB200)	9.3.12

9.3.1 Set date and time (DATE AND TIME)

A password must be entered to set the date and time:

CITIMB200

Set date:



⇨ Select <DATE AND TIME>.

⇨ Select <DATE>.

⇨ Enter the day.

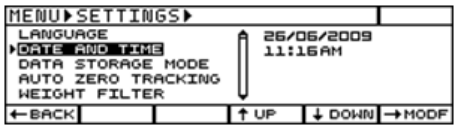
⇨ Enter the month.

⇨ Enter the year and confirm.

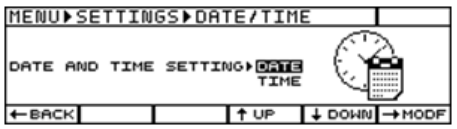
⇨ Date is saved.

⇨ The device returns to the settings.

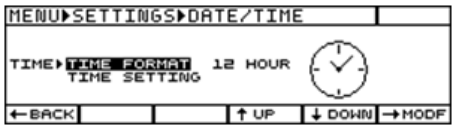
Set the time:



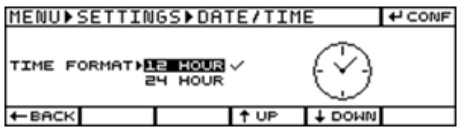
⇨ Select <DATE AND TIME>.



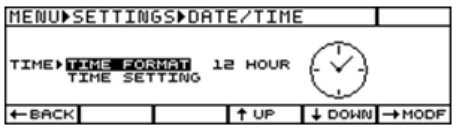
⇨ Select <TIME>.



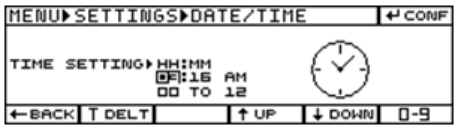
⇨ Select <TIME FORMAT>.



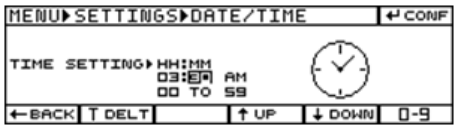
⇨ Select the format (12 or 24 hours) and confirm.



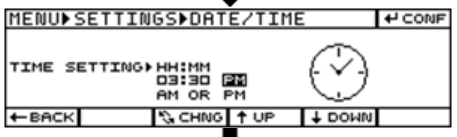
⇨ Select <TIME SETTING>.



⇨ Enter the hours.



⇨ Enter the minutes.



⇨ Select AM or PM and confirm.

⇨ The settings selection is displayed. You can now exit the menu.

9.3.2 Set storage method (DATA STORAGE MODE)

Data storage concept:

The data memory has 1000 memory locations. The user can access and print the stored data at any time. The user can also display statistics for the data and print them.

The data can be stored in the following ways

- By method
- By batch ID

Note: If the data storage type is changed, all stored data will be lost.

Notes on storage by method:

- 25 data records can be stored per method. If the number of data records exceeds 25, the first data record will be overwritten (ring memory).
- When data records are overwritten, the statistics are updated.

Notes on storage by batch:

- A total of 1000 data records can be stored. You can freely decide how many data records are stored per batch.
- There is no preset or configurable number of data records that can be stored per batch. Data is stored until 1000 storage locations are occupied.
- If the maximum number of 1000 data items is exceeded, the first data record of the selected batch is overwritten.
- When data records are overwritten, the statistics are updated.
- A maximum of 100 batches can be created.
    - Example: If only 6 batches are used, but these already occupy all 1000 available memory locations, 94 additional batches can still be created technically, but no further data storage is possible. In order to store new data, existing data must first be deleted.

      The same applies if all 1000 storage locations in a batch are occupied.
- If parameters of a method are changed, the associated batch is locked and no further data can be added. However, the data in the batch can still be displayed.

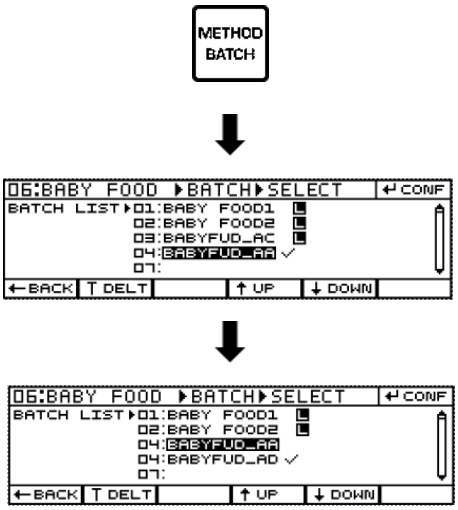
Selecting the data storage method:

Settings:

METHOD-WISE*	Storage by method
BATCH-WISE	Storage by batch

Select batch:

Prerequisite: BATCH-WISE is activated



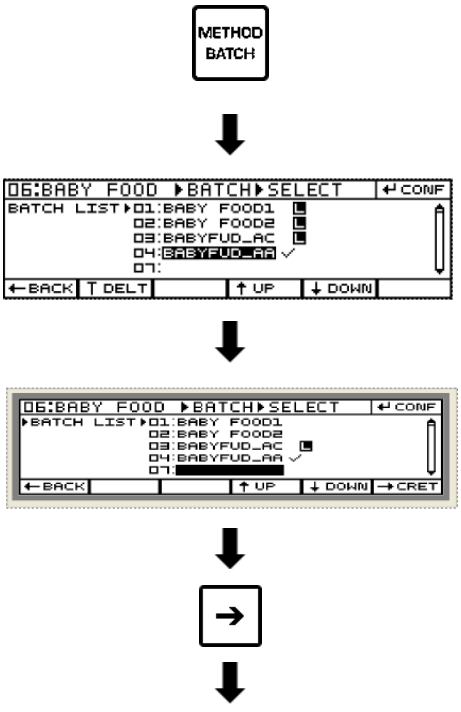
⇨ Press and hold [METHOD/BATCH] for approx. 2 seconds.

⇨ The batch list for the current method opens.

⇨ Select batch.

Create new batch:

Prerequisite: BATCH-WISE is activated



⇨ Press and hold [METHOD/BATCH] for approx. 2 seconds.

⇨ The batch list for the current method opens.

⇨ Select empty storage space.

⇨ Press [➔].

⇨ Enter the batch name (maximum 10 characters) and confirm with [START/STOP & ENTER].

(You can cancel the entry with [←]).

If the memory is full, an error message appears. In this case, first delete occupied memory locations. Note: Deleted locations (e.g. batch 02) are given priority when saving again.

Batches can be deleted with [TARE].

9.3.3 Activate automatic zero tracking (AUTO ZERO TRACKING)

Settings:

ON	Automatic zero tracking activated
OFF	Automatic zero tracking deactivated

9.3.4 Set filter (WEIGHT FILTER)

Settings:

FASTEST	Fastest (for unstable environments)
FAST	Fast
SLOW	Slow
SLOWEST	Slowest (for very quiet environments)

9.3.5 Set user ID (USER ID)

- Up to 4 IDs can be stored on the device
- The activated user ID is printed on the printout

- The user ID can be up to 16 characters long
- The first character should not be a space
- The currently selected character can be deleted with [TARE]
- Press [START/STOP & ENTER] to save the entry

9.3.6 Assign foot switch (FOOT KEY)

If the moisture analyser is connected to a foot switch, this can be assigned a function. The following keys can be assigned to a foot switch:

START/STOP	Start/stop measurement
TARE	Tare
PRINT	Print data
TOGGLE	Change unit

9.3.7 Set quick menu access (SOFT KEY)

This setting defines which submenu is opened when [MENU] is pressed briefly. The following submenus can be assigned to the key:

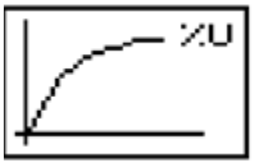
MENU	Main menu
SETTINGS	System settings
DATA	Data output
CALIBRATION	Adjustment settings for temperature or weight
STD WT CAL	Weight adjustment
PRINT FORMAT	Print settings

9.3.8 Setting the automatic switch-off function (AUTO OFF)

The auto-off function can be used to set the time after which the device automatically switches to standby mode.

OFF		Automatic switch-off function deactivated
ON		Automatic switch-off function activated
	TIME	Set switch-off time (settings 1–60 minutes possible)

9.3.9 Graphic settings (AUDIO-VISUAL)

Audio-Visual	Display	Invert • On • Off	 Off  on
		Font • 1 • 2	 1 (round)  2 (square)
	Graph	• On* • Off	 On = Graph is displayed during drying
	Buzzer	• On* • Off	

9.3.10 Perform heater test (HEATER TEST)

⚠ CAUTION

Risk of burns from hot surfaces

Touching hot surfaces can cause burns and scarring

Parts of the device become very hot during temperature adjustment, heating tests and measurements. Therefore, never touch the lid, halogen lamp, glass parts, parts inside the chamber, tray and tray holder, or samples without wearing adequate protective clothing.

PERFORM TEST	Start heating test
MODIFY TEMP	Enter the temperature. Note: If a value has already been entered, the digits must first be deleted with **[TARE]** before a new entry can be made.

9.3.11 Display device information (BALANCE INFO)

The following information is displayed in this menu:

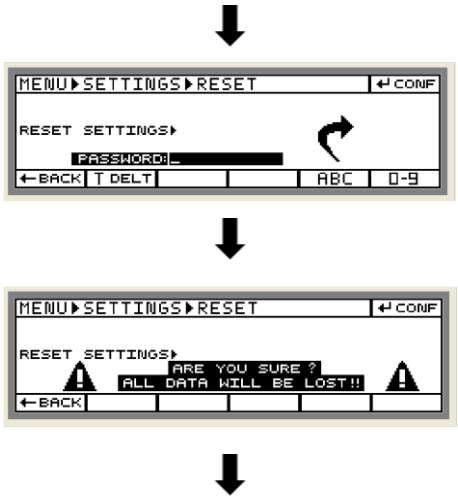
- Model name
- Serial
- Software version

The data cannot be changed.

9.3.12 Reset device settings

NOTE

Deleted data cannot be recovered.



...

⇨ Select <RESET>.

⇨ Enter and confirm your password (CITIMB200).

⇨ The message <ARE YOU SURE? ALL DATA WILL BE LOST!!> appears.

⇨ Confirm.

⇨ The device is reset (the process takes approx. 20 minutes).

⇨ After resetting, the device returns to the menu.

9.4 Submenu: Methods

9.4.1 Name

Parameter	Type	Symbol	Range	Default setting
NAME	-	-	Maximum 10 characters	DEFAULT – METHOD 40

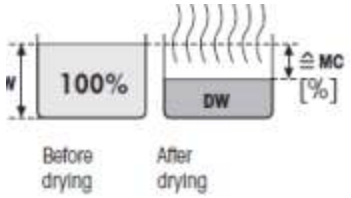
Note: The name of the default method (DEFAULT) cannot be changed.

9.4.2 Unit

Parameter	Type	Symbol	Range	Default setting
UNIT	%MOISTURE	%M	-	% M
	%DRY	%D	-	-
	%RATIO	%R	-	-
	GM/LT	g/l	grams per litre Volume: 0.0001 to 9.9999 litres (default: 1.0000 litres)	-
	ATRO MOISTURE	$\%M_{ATRO}$	-	-
	ATRO DRY	$\%D_{ATRO}$	-	-

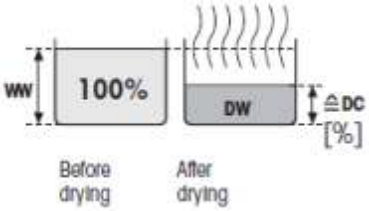
Conversion

1. %M



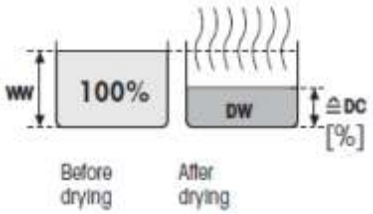
$$(\%M) = \frac{Starting\ weight\ -\ Current\ weight}{Current\ weight} \times 100$$

2. %D



$$\%\boldsymbol{D} = \mathbf{100} - \frac{Starting\ weight\ -\ Current\ weight}{Current\ weight} \times \mathbf{100}$$

3. %R



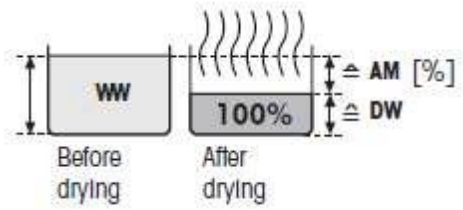
$$(\%R) = \frac{Current\ weight\ \times 100}{Statring\ weight}$$

4. Grams per litre (g/l)

$$(\boldsymbol{g/l}) = \frac{\boldsymbol{Current\ weight}}{\boldsymbol{Volume}}$$

5. %MATRO

Atro units are used for wood and forestry products. Wood moisture indicates the water content relative to the absolutely dry wood mass. Air-dry wood usually contains 15–20% water, while absolutely dry wood is produced by heating it to over 100 °C. The atro value is calculated from the difference between the wet and dry weight in relation to the dry weight.



$$(\%\boldsymbol{AM}) = \frac{\boldsymbol{Starting\ weight - Current\ weight} \times \mathbf{100}}{\boldsymbol{Current\ weight}}$$

6. %DATRO

$$(\%\boldsymbol{AD}) = \frac{\boldsymbol{Starting\ weight} \times \mathbf{100}}{\boldsymbol{Current\ weight}}$$

9.4.3 Capacity bar / tolerances

Activating this setting allows a capacity bar to be displayed.

Parameters	Content	Symbol	Default
WEIGH-ASSIST	OFF		• Target weight (TARGET WEIGHT): 5 g • Tolerance: 10%
	ON • TARGET WEIGHT • TOLERANCE		

- TARGET WEIGHT: Inputs from 1 g to 198 g possible
- TOLERANCE: Input from 1 g to 50% possible

Example

Input: Target weight = 50.0 g, tolerance = 10%

Lower limit = 45 g

Upper limit = 55 g

→ If 44.999 g is weighed, " " flashes.

→ If 55.001 g is weighed, " " flashes.

→ If the weight is within the limits, nothing flashes.

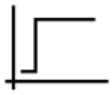
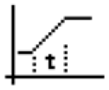
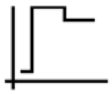
9.4.4 Start of analysis

Parameters	Type	Default setting
START OF ANALYSIS	AUTO: YES/NO	AUTO: NO WITH STABILITY: YES DELAY: YES
	WITH STABILITY: YES/NO	
	DELAY: YES/NO	

- The user sets the conditions for starting the drying process.
- AUTO = NO→ Delay and stability are checked first, then the user must start the process manually.
- AUTO = YES→ Once stability and delay have been achieved, the drying process starts automatically as soon as the chamber cover is closed.
- WITH STABILITY = NO→ The process starts automatically (if AUTO = YES) or manually (if AUTO = NO) after closing the chamber cover, regardless of whether stability has been achieved.
- WITH STABILITY = YES→ The drying process only starts when stability has been achieved.
- DELAY = YES→ A delay of 2 seconds is added when the drying process starts.
- DELAY = NO→ The process starts without the 2-second delay.

Note: If the chamber cover is opened during the delay, the addition of solvent is started.

9.4.5 Heating profile

Parameter	Type	Symbol	Range	Default setting
HEATING PROFILE	STANDARD		30 °C to 150 °C	110 °C
	GENTLE		Temperature: 30 °C to 150 °C	Temperature: 110 °C
			Time: 1.0 to 20.0 min	Time: 3.0 min
	RAPID		30 °C to 105 °C	70 °C
	STEPS		Temperature 1: 30 °C to 150 °C	Temperature 1: 90 °C
			Time 1: 0.0 to 99.9 min	Time 1: 5.0 minutes
			Temperature 2: 30 °C to 150 °C	Temperature 2: 110 °C
			Time 2: 0.0 to 99.9 min	Time 2: 5.0 min
			Temperature 3: 30 °C to 150 °C	Final temperature: 130 °C
	HIGH TEMP		Temperature: 30 °C to 175 °C	Temperature: 110 °C
				Time: 3.0 min

1. STANDARD

- In the standard heating profile, the current temperature is heated to the desired temperature in the fastest possible time.
- This heating profile is suitable for most substances.
- Once the target temperature is reached, the system maintains this temperature until the switch-off criterion is met.

2. GENTLE

- Heating rate = temperature / time in minutes.
- Once the target temperature is reached, the system maintains this temperature until the shutdown criterion is met.
- Suitable for samples with low moisture content or samples with a risk of combustion.

3. RAPID

- Works like the standard profile, but the temperature is 40% higher than the setpoint for the first 3 minutes.
- Suitable for samples with a moisture content of more than 30%.
- After the first 3 minutes, the temperature is lowered to the setpoint and maintained there.

4. STEP (Stepwise)

- Several standard heating profiles switched on sequentially.
- Suitable for substances with multiple components that evaporate at different temperatures (e.g. essential oils).
- Time input in minutes (minimum value: 0.0 min).
- For the first two stages, the temperature holding time is also entered.
- After the first stage has elapsed, the second stage starts automatically, followed by the third stage.
- The third stage is the last and maintains the set temperature until the switch-off criterion is met.
- If **[TARE]** is pressed during drying, the system displays the total moisture content determined for each stage.

5. HIGH TEMP

- For temperatures above 150 °C up to a maximum of 175 °C.
- Adjustable range: 30 °C to 175 °C, default value: 110 °C.
- Heating curve as for the standard profile, but with a higher target temperature setting.

9.4.6 Switch-off criterion

Parameter	Type	Symbol	Range	Default setting
SWITCH OFF CRITERION	AUTO		-	-
	MANUAL		-	-
	TIMED		0.1 to 999.9 minutes	15.0 min
	USER DEF G/T		Wt: 1 to 50 mg Time: 5 to 300 sec	WT / Time 10 mg / 60 sec
	USER DEF % U/TIME		%U: 0.1 to 90.0 % Time: 5 to 300 sec	5.0 % U / 60 sec
	INTELLIGENT		%U: 0.1 to 90.0 % Time: 0.1 to 999.9 min	5% U / 15 min 5.0% U / 15.0 min

1. Automatic

- Fixed condition: Analysis ends when the **weight change** is **< 1 mg** within the last **50 seconds**.
- The heater stops automatically and the final result is displayed and printed.
- Variants: **Auto 1** to **Auto 5** (different sensitivity and stability parameters).

For AUTO 1 – <= 1 mg/10 sec.

For AUTO 2 – <= 1 mg/25 sec.

For AUTO 3 – <= 1 mg/60 sec.

For AUTO 4 – <= 1 mg/90 sec.

For AUTO 5 – <= 1 mg/120 sec.

2. Manual

- Termination of the process exclusively by pressing **[START/STOP].**
- The current weight at this point is used as the final weight.

3. Timed

- The user specifies the desired heating duration.
- Setting range: **0.1 min to 999.9 min**
- Default value: **15 min**
- Once the set time has elapsed, the current weight is recorded and the result is displayed.

4. User-defined – weight/time

- Same principle as "Automatic", but with individually adjustable limit values.
- The user defines:
    - **Time interval** (seconds)
    - **Maximum weight change** (milligrams)
- Example: **2 mg / 60** s→ If no weight loss ≥ 2 mg occurs within the last 60 seconds, the process stops.

5. User-defined – % unit/time

- Same principle as "User-defined – Weight/Time", but the **percentage change of a unit** (e.g. %M = moisture content) is monitored.
- The user defines:
    - **Time interval** (seconds)
    - **Percentage change** (% of current unit)
- Example: **5 %M / 30** s→ If there is no change ≥ 5 %M within the last 30 seconds, the process stops.

6. Intelligent

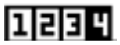
- Performs the analysis using **five different shutdown criteria** and recommends the one whose result is closest to the specified **target value**.
- The user enters:
    - **Target value** (any unit)
    - **Maximum heating time**
- Procedure:
    1. Start with the selected heating profile.
    2. Application of criteria **1 mg weight loss** within **20, 50, 120, 180, 240 seconds** – one after the other.
    3. After each criterion has been met→ Result is displayed and printed.
    4. Display of the currently active criterion under the **switch-off symbol** (e.g. *SW 1*).
        - **[POINT/SPACE]** during the process→ Display of all intermediate results; press again→ Return to normal display.
        - **[TOGGLE] + [POINT/SPACE]**→ Display results in the switched unit.
        - After all criteria have been met, heating continues until the maximum time is reached.
        - Time elapsed→ System selects the criterion whose result is closest to the target value (based on < 1 mg weight change).
        - The result of this recommended criterion is **not statistically valid** and is **not saved**.
        - The final result in normal mode is displayed **inverted**.

9.4.7 Standby temperature

Parameter	Type	Symbol	Range	Default setting
STANDBY TEMPERATURE	TEMPERATURE		30–100 °C	30 °C
	TIME		5–300 min	10 min
	SWITCH-OFF		12–24 hours	6:00 pm

- The standby temperature is only executed during the pre-analysis.
- While the temperature is being maintained, the symbol is displayed.
- The standby temperature is also maintained when the keys are locked.
- When the lid is opened, heating to standby temperature is interrupted.
- When the pre-analysis mode is exited (e.g. by opening the menu), heating to standby temperature is interrupted.
- Once the time set under <TIME> has elapsed, heating to standby temperature is stopped.
- Under the following conditions, heating to standby temperature is resumed:
    - When the moisture analyser is switched on from standby mode.
    - When the parameters for the standby temperature of the current method are changed.
    - When the moisture determination is cancelled or terminated.

9.4.8 Additional method IDs

Parameters	Type	Symbol	Range	Default
ID PREFERENCE	ID1		Max. 20 characters for each ID	-
	ID2			
	ID3			
	ID4			

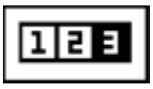
- Four IDs can be defined for each individual method.
- An ID represents a line that can be printed additionally (see chapter11.2 , ID1–4).
- If an ID is displayed with a white background, this means that it can still be adjusted before moisture determination. In this case, [TOGGLE] can be used to quickly access the ID list and adjust the corresponding ID.
- IDs with a black background can only be displayed but not edited. In this case, only the list of IDs is opened. Only IDs can be edited via quick access if they receive <CONFIGURABLE>→ <ON>.

9.4.9 Output interval

Parameter	Type	Symbol	Range	Default
PRINT INTERVAL	TIMED		30–60 s (PC) 30-600 s (Printer)	60 s
	FINAL RESULT		-----	-----

- TIMED RESULT: Prints the interim results at defined time intervals while the moisture determination is being carried out.
- FINAL RESULT: Prints the final result.

9.4.10 Numbering

Parameters	Type	Symbol	Range	Default setting
NUMBERING	ABSOLUTE ON		-	-
	ABSOLUTE OFF		-	-

- ABSOLUTE ON: Numbering begins with the first moisture determination.
- ABSOLUTE OFF: Numbering is based on the number of measurements taken in a day.

9.4.11 Reset

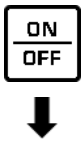
When the method is reset with <RESET>, all values for the method are set to default settings. The data stored in the method is also deleted.

Note: When a method is reset, the currently active batch is locked.

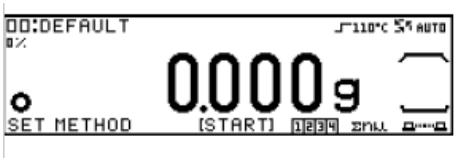
10 Operation

10.1 Switching on the device

Switch on / exit standby mode



⇨ Press [ON/OFF]



⇨ The display switches to pre-analysis mode and shows the last activated method and setting (with batch storage method, the active batch ID is shown in the centre of the top line)

10.2 Perform moisture determination

⚠ CAUTION

Risk of burns from hot surfaces

Touching hot surfaces can cause burns and scarring

Parts of the device become very hot during temperature adjustment, heating tests and measurements. Therefore, never touch the lid, halogen lamp, glass parts, parts inside the chamber, tray and tray holder, or samples without wearing adequate protective clothing.

10.2.1 Preparing for measurement / preliminary analysis

1. Prepare the device

- The device should be at room temperature→ If the device is cold, preheat it for 2–3 minutes (select standby temperature).
- It should be in <READY> mode.

2. Analyse sample (preliminary analysis)

- Check how IR rays (halogen) are absorbed→ Notes on drying behaviour.
- The temperature for halogen drying is usually lower than for oven drying.
- If the result deviates→ , vary the heating temperature before adjusting other parameters.

3. Adjustment to reference method (oven method)

- Perform parallel measurements: one half using the standard method (oven), the other using the moisture analyser.
- Moisture analyser settings:
    - Switch-off criterion: Automatic
    - Temperature
        - Organic substances: 80–120 °C
        - Inorganic materials: 140–175 °C
- If the sample yields different results with the moisture analyser than with the oven method:
    - First repeat the measurement at a different temperature
    - If there are still differences: Set the shutdown criterion weight/time (faster: 3 mg/50 s or 5 mg/60 s, slower: 10 mg/30 s or 5 mg/10 s) or intelligent mode

10.2.2 Prepare samples

1. Take samples

- If necessary, homogenise the sample (mix/stir, take samples from different locations or at different times)
- Prepare only one sample per measurement and prepare it as quickly as possible
- If several samples are required, they must be stored in airtight containers. Please note the following:
    - Warm or volatile substances lose moisture very quickly→ , moisture can condense on the walls of the container
    - If the container is too large, the sample can exchange moisture with the air in the container and dry out.
- When crushing samples, note the following:
    - Avoid heat
    - Use a pestle or grinder
    - For liquids containing solids: use a glass stirrer, spoon or magnetic stirrer

2. Apply samples

- Apply the sample in a thin, even layer to the weighing pan (layer thickness: 2–5 mm, weight: 5–15 g)
- Distribute evenly→ uneven layers lead to incorrect results, longer drying times or crust formation
- For liquid/paste-like samples or melt samples: Use a glass fibre filter→ Even distribution, faster evaporation, no droplet formation
- For sugary samples, avoid crust formation: place the filter on or under the sample.

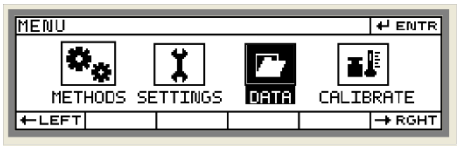
  If crusting occurs:

  - If necessary, add solvent to the sample (this does not affect the final result).
  - Solvent can be added before or shortly after the start of the measurement (display shows <ADD SOLVENT>).
  - After closing the lid and evaporation, moisture determination starts automatically. (Note: To do this, <START OF ANALYSIS> must be set to <DELAY> in the method settings.)

10.2.3 Start moisture determination

1. Press **[METHOD / BATCH]** and select the method.
2. Open the chamber.
3. Place the pan on the balance and tare with **[TARE]**.
4. Press **[START/STOP]**.
   ⇨ <PREPARE SAMPLE> appears.
5. Place the sample on the pan.
6. Close the chamber.
7. Start moisture determination with **[START / STOP]** (an automatic start can also be set in the <START OF ANALYSIS> setting).
   ⇨ Measurement is performed.
   ⇨ When the measurement is complete, an acoustic signal sounds and the "End" symbol appears on the display.
   ⇨ The result can be read.
8. Press **[RESET / EXIT]** to return to weighing mode.

10.3 Call up stored data



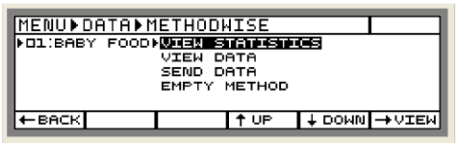
⇨ Open the menu.

⇨ Select <DATA>.

⇨ Data is opened (example: storage by method).

Note: Depending on the data storage method setting, the data is listed by method or batch.

⇨ Press **[➔]**.



⇨ Data options will open:

<VIEW STATISTICS>	View statistics
<VIEW DATA>	View measurement data/parameters
<SEND DATA>	Output data
<EMPTY METHOD> or <EMPTY BATCH>	Delete data

The output can be configured in the print settings→ see chapter11.2 .

11 Communication with peripheral devices

11.1 Interface settings (INTERFACE)

Settings:

SERIAL PORT	RS232
USB	USB

SERIAL PORT

Peripherie	PRINTER	Select Peripherie device
	PC*	
BAUD RATE	19200	Select baud rate
	9600	
	4800	
	240	
	1200	
	60	
DATA BITS	8 BITS*	Select data bits
	7 BITS	
PARITY	NONE*	No parity
	EVEN	Even
	ODD	Odd
	MARK	Parity bit is a binary 1
	SPACE	Parity bit is a binary 0 (bit padding)
STOP BITS	1 BIT*	1 stop bit
	2 BITS	2 stop bits

11.2 Print format

Default settings are marked with an *.

Parameters	Displayed text	Header	Interim result	Footer	Statistics	Info	Print	
Blank line (a)	Blank line	Yes*	Yes	Yes*	Yes*	Yes*		
Dash line (a)	Dash line	Yes	Yes	Yes	Yes	Yes	*----------	
GLP header	GLP header	Yes*			Yes*	Yes*	*----------	
							30/06/2012	01:36
							KERN & SOHN GmbH	
							Model No.	Mb200
							Serial No.	3456321
							Ver. No.	1.1.3.16
							User ID	Peter_Jackson_12

Date and time	Date / time	Yes	Yes	Yes	Yes	Yes	30/06/2009	01:36 PM
Time with seconds	Time with seconds	Yes	Yes	Yes	Yes	Yes	01:36:45 PM	
User identification	User ID	Yes	Yes	Yes	Yes	Yes	User ID	Peter_jackson_12
Identification code 1	ID 1	Yes	Yes	Yes	Yes	Yes	RESEARCH DEVELOPMENT	
Identification code 2	ID 2	Yes	Yes	Yes	Yes	Yes	ELECTRONICS DEPT.	
Identification code 3	ID 3	Yes	Yes	Yes	Yes	Yes	MIDC	
Identification code 4	ID 4	Yes	Yes	Yes	Yes	Yes	BRICKWORKS 1	
Numbering of the analysis	Number	Yes					Anls. No.	1250
Currently loaded method	Method	Yes*			Yes*	Yes*	Method 02:	CORN FLOUR

Parameters	Displayed text	Header	Interim result	Footer	Statistics	Info	Print	
Name of the currently loaded batch	Batch	Yes*			Yes	Yes		
Start of analysis settings	Start of Analysis	Yes*					Start of Analysis	
							Automatic	Yes
							Stability	Yes
							Delay	No
Heating profile	Heating	Yes					Heating	STANDARD
							Temp	120 °C
Criterion for switching off	Switch off	Yes					Sw-off	AUTOMATIC
Standby temperature	Standby	Yes*					Standby	50 °C
							Time	120 min
							Switch-off time	06:00 pm
Compile parameters	Compile	Yes					Compile	OFF
							Method 07 :	CORN FLOUR2
Weight on the scale at the start of moisture determination	Initial weight	Yes*					Init. Wt.	+ 120.005 g
Current analysis time and result	CRNT ANLS TIME/RESULT		Yes				00:07:22 hrs	15.83%
Current weight	CRNT WEIGHT		Yes				Crt. Wt.	+ 107.005 g
Current analysis time	CRNT ANLS TIME		Yes				Crt. time	1:23:56 hrs
Current analysis result	CRNT ANLS RES		Yes				Crt. res.	23.5% M
Result per minute	Result per minute		Yes				Res./ min.	+ 93 MG
Final weight	Final Weight			Yes*			Final wt.	+ 101,005 g
Final result per and time	Final Res / Time			Yes*			1 : 23 : 56 hrs	- 123.5% AD

Parameters	Displayed text	Header	Interim result	Footer	Statistics	Info	Print	
GLP footer	GLP footer			Yes*	Yes*	Yes*	----------	
							29/08/2025	01:36 PM
							Name:	
							.....	
Name and signature	Name and signature			Yes	Yes		----------	
							Name:	
								.....

Final analysis result	Final analysis result			Yes			Final Res.	- 123.5% AD
Final analysis time	Final Analysis Time			Yes			Final Time	2 : 23 : 56 hrs.
Last weight calibration	LAST WT CAL			Yes			Last Wt. Cal	01/06/2009
Last temperature calibration	LAST TEMP CAL			Yes			Last Cal	01/06/2009
Text line of statistics	Text Statistics					Yes	Statistics	
Number of analyses	No. of Anls				Yes*		No. of analyses n	25
Mean value	Mean value				Yes*		Mean £	1.25% AD
Standard deviation	STD DEV				Yes*		Std. dev. δ	0.25% AD
Minimum value	MINIMUM				Yes*		Minimum -	120.3% AD
Maximum value	MAXIMUM				Yes*		Maximum -	755.7% AD
Data storage mode	Data Storage Mode				Yes		Data Storage mode	Method wise
Active unit	Unit				Yes			

Parameter	Displayed text	Header	Interim result	Footer	Statistics	Info	Print	
Information about the analysis	Analysis info				Yes*		Analysis info	

Results	Results					Yes*	Result:	1902345 G / L
If the device is switched off without a switch-off criterion							FORCED SWITCH OFF	
Display results of steps							Step1 res. -	123.5% AD
							Step2 res -	234.5% AD
							Step3 res -	567.8% AD

Settings

The content of the following print sections can be defined by the user:

- Header
- Intermediate result
- Footer
- Statistics
- Info

Notes:

- Use **[PRINT]** to print the currently activated parameters for a section.
- A maximum of 24 characters per line can be printed.
- When the heating process for moisture determination is started, the header is printed.
- The interim results are printed during the drying process.
- The footer is printed after the measurement is complete and the final result is output.
- The statistics can be output with **[PRINT]** when they are displayed on the screen.

12 Maintenance, servicing, disposal

Disconnect the device from the operating voltage before carrying out any maintenance, cleaning or repair work.

12.1 Cleaning

Remove spilled material (e.g. loose sample residues or powder) immediately with a brush or hand vacuum cleaner.

Use a mild cleaning agent such as soapy water and a soft cloth to clean the device. Then wipe the device dry with a dry, soft, lint-free cloth.

Observe the following instructions to avoid damage:

- Do not use aggressive cleaning agents (e.g. solvents), as these will react with the materials and damage them.
- Do not use cleaning agents containing caustic soda, vinegar, salt, sulphur or citric acid on stainless steel parts.
- Do not use metal brushes or steel wool cleaning sponges, as these will damage the surface.
- Ensure that no liquid penetrates the appliance.

12.2 Maintenance

⇨ The device may only be opened by trained service technicians authorised by KERN.

⇨ Disconnect from the mains before opening.

- Replace the halogen lamp after 3000 operating hours.
- Switch off the device and remove the power supply unit before replacing the halogen lamp. Do not touch the halogen lamp connection, as this may result in an electric shock.

12.3 Disposal

The disposal of packaging and equipment must be carried out by the operator in accordance with the applicable national or regional laws of the user's location.

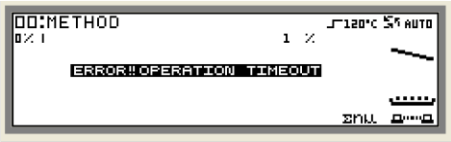
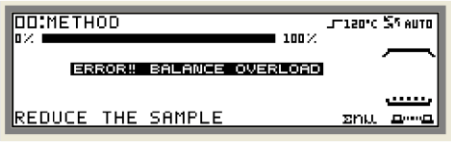
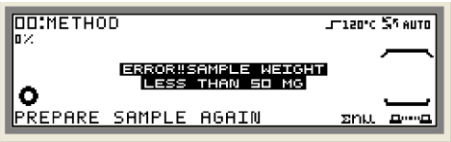
13 Minor troubleshooting

In the event of a malfunction in the programme sequence, the device should be switched off briefly and disconnected from the mains. The process must then be restarted from the beginning.

Malfunction	Possible cause
The display is not illuminated.	• The device is not switched on. • The connection to the mains is interrupted (mains cable not plugged in/defective). • The mains voltage has failed. • The fuse has blown.
The display does not change when a sample is placed on the stage.	• The sample tray/tray holder is incorrectly mounted.
The weight display changes continuously.	• The sample pan is in contact with the windshield or lid. • Draughts/air movements • Vibrations of the table/floor • Electromagnetic fields/static charge (choose a different installation location/switch off any interfering devices if possible)
Incorrect measurement result	• No zero setting before placing the sample. • The adjustment is no longer correct. • The balance is not level. • There are significant temperature fluctuations. • The warm-up time was not observed. • Electromagnetic fields / static charge (choose a different location / switch off any interfering devices if possible)
The measurement takes too long	• Incorrect switch-off criterion set

Malfunction	Possible cause
The measurement is not reproducible	• Sample is not homogeneous • Drying time too short • Drying temperature too high (e.g. oxidation of sample material, boiling point of sample exceeded) • Temperature sensor dirty or defective
Drying does not start	• Lid open • Connection to the mains is interrupted (mains cable not plugged in or defective)

14 Error messages

Error message	Explanation
	Load unstable→ Ensure calm environmental conditions
	Underload→ Increase load
	Overload→ Reduce load
	→Chamber temperature is higher than the set temperature for measurement. Allow to cool.
	Sample weight is less than 50 mg→ Use a higher weight