Bench scale
Model Series: FCB

Type Series: TFCB-A

Operating instructions (Translation of the original operating instructions)
Version 2 (2026-09) - en_GB

Read the instructions prior to performing any task!

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TFCB-A-BA-e-2620

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Supplemental directives

Read this document carefully and completely before using the device and observe the safety precautions contained therein. The manufacturer is not liable for damage resulting from disregarding the instructions or improper use.

Supplemental directives

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1 Introduction

1.1 Validity

This document is an integral part of the product. It is valid for the product versions listed below.

You can recognise which product version your product is on the type plate. The following illustration is an example. The real type plate may differ from the illustration. The model number is shown in <Model> and the type item no. is shown in <Type>.

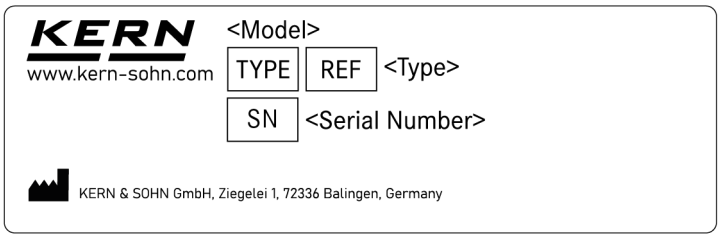


Fig. 1: Example of the type plate (real type plate may be different)

Model	Item no. / Type
FCB 6K-3DM	TFCB 6K-3DM-A
FCB 15K-3DM	TFCB 15K-3DM-A
FCB 6K-5	TFCB 6K-5-A
FCB 12K-4	TFCB 12K-4-A
FCB 30K-3DM	TFCB 30K-3-DM-A
FCB 30K-4	TFCB 30K-4-A

1.2 Document purpose

This document provides the user with descriptions for the safe and efficient use of the product. The document must be carefully read and understood by all users before the product is used.

1.3 Other versions of the document

The original version of this document was created in German. We reserve the right to make subsequent changes to the product documentation. The current version and other language versions of the document can be found on our website ➦ *www.kern-sohn.com.*

You can find more interesting information about our products in the download area:

- Technical data sheets
- Product brochures and catalogues
- Information on the KCP protocol and software

1.4 Presentation conventions

References in the text

Element	Meaning
Example: **[TARE]**	Labelling of keys
Example: <SEtuP>	Text on the device display
*	Asterisk * indicates default settings

Instructions

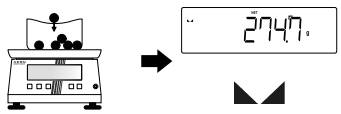
Instructions are presented as step-by-step guidance.

1. This is step 1.

2. This is step 2.

➡ This is the result of step 2.

Scale operation

Element	Meaning
	left = action, right = result (the scales and displays shown may differ from this example)
	Navigation keys for input on the device (the keys shown may differ from those in this example)

Other representations

Here you will find additional information or tips.

2 General safety instructions

Read this document thoroughly and carefully before using the device and observe all safety precautions contained herein to avoid bodily injury and damage to property. Keep this document in a place that is always easily accessible so that it is quickly available when needed.

2.1 Meaning of the warnings

Warnings warn you of possible safety risks during certain activities. Read the warnings in full and follow the instructions. Failure to do so may result in injury, damage to property, environmental damage, malfunctions or incorrect results.

Meaning of the signal words

Signal word	Meaning
DANGER	This combination of symbol and signal word indicates an immediate dangerous situation that will result in death or serious injury if it is not avoided.
WARNING	This combination of symbol and signal word indicates a possible dangerous situation that can result in death or serious injury if it is not avoided.
NOTICE	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.
ENVIRONMENT	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.

Meaning of the warning signs

Warning signs	Type of danger
	Warning – danger zone.
	Warning – dangers due to batteries.
	Warning – high-voltage.

2.2 Safe handling of packaging material

Always keep packaging material away from children and animals to avoid the danger of suffocation.

2.3 Safe handling of electrical devices

Safe handling of power supply units and power supplies

Improper handling of mains-powered devices or the use of damaged or unsuitable power supply units or mains cables can lead to life-threatening injuries. Therefore, please observe the following instructions:

- If the electrical equipment is defective (e.g. damage to the power supply unit or mains cable, deformation, smoke, etc.), the device must not be used. If you notice any damage, disconnect the device from the power supply immediately and contact your dealer or the technical service of KERN & SOHN.
- Only connect the device to a properly installed and undamaged power supply. The information on the device (type plate) and the mains voltage at the place of use must be identical.
- To prevent short circuits, ensure that no moisture (e.g. steam or liquids) is present near the electrical equipment at the place of use.

- Only use original power supply units and connecting cables. If you need a replacement, please contact your dealer or the technical service of KERN & SOHN.
- Any work on the electrical equipment of the device may only be carried out by the technical service of KERN & SOHN.
- The mains cable must not be pinched or kinked and must be laid in such a way that it does not pose a tripping hazard.
- In case of an emergency, it must be possible to disconnect the device from the power supply without any problems.

Safe handling of batteries and rechargeable batteries

Batteries and rechargeable batteries may catch fire, emit toxic fumes, release corrosive liquids or explode if not used correctly. Therefore, observe the instructions in the following section.

Damage

- Do not use damaged or deformed batteries and rechargeable batteries.
- Protect batteries and rechargeable batteries from mechanical damage, heat, cold, water and chemicals.
- Protect batteries and rechargeable batteries from short circuits. Never touch the terminals with metal objects.
- When inserting batteries and rechargeable batteries, ensure that the polarity (positive and negative terminals) is correct and that you are using suitable battery types. Only use types recommended by the manufacturer.
- Batteries and rechargeable batteries must not be modified.

Charging batteries

- Chargers must not be modified.
- Only use the original charger.
- Observe the charging time specified in the technical data and avoid overcharging.
- Do not charge batteries that are deformed or show other signs of damage.
- In the event of heat build-up, deformation, smoke or burnt smell, disconnect the charger immediately and remove it from service.

Transport

- When transporting batteries or rechargeable batteries, the applicable national and international regulations must be observed. Ensure that batteries or rechargeable batteries are protected against short circuits and damage. Do not ship defective batteries or devices containing defective batteries.

Storage

- Charge the battery if you will not be using it for a long time.
- Remove the batteries or rechargeable batteries if the device is not to be used for a longer period of time.
- Protect batteries and rechargeable batteries from short circuits (e.g. by covering the terminals) and store them separately by type. Preferably use a fireproof container for storage.
- Store batteries and rechargeable batteries at room temperature in a dry place. Avoid extreme cold or extreme heat in the storage environment. Also observe the recommended ambient temperature stated in the technical data.

Battery fluid

- Avoid contact between leaking fluid and skin, eyes or clothing.
- Wear protective clothing/equipment when removing a defective battery and ensure the room is well ventilated.
- Clean skin or clothing that has come into contact with battery fluid thoroughly with soap suds and then rinse with clean water.
- In case of contact with eyes, rinse immediately with clean water and then get medical help.

Disposal

- Do not dispose of batteries and rechargeable batteries in household waste, but at collection points or recycling centres.
- Ensure that the poles are not short-circuited during disposal.
- Further information on disposal: ➦ *'Disposal of batteries and rechargeable batteries' on page 96*

2.4 Notes on IT security

This device is equipped with an interface for data transmission. Unauthorised persons may be able to gain access to the data being exchanged. It is the operator's responsibility to identify the potential IT risks at the place of use and to take appropriate countermeasures where necessary.

2.5 Intended use

Intended use of the scale

This scale is used to determine the weight of items to be weighed. This scale is a "non-automatic weighing instrument". This means that the material to be weighed must be placed manually, with care and as centred as possible on the weighing plate. Once a stable weight value is displayed, the result can be read.

2.6 Improper use

Improper use of the scale

- Our scales with strain gauges are not intended for use in dynamic weighing processes.

  However, the scales can also be used for dosing applications after checking the individual area of application and the accuracy requirements.

  You can find out whether your scale is equipped with strain gauge technology by checking the technical data.
  ➦ *Chapter 18.1 'Technical data' on page 101*
- To prevent damage, avoid impact loadings and do not exceed the maximum load limit (Max.) of the scale.
- Any modification to the design of the scale will invalidate the warranty and may lead to incorrect weighing results and safety-related defects. Such modifications are therefore prohibited.
- The scale may only be used in accordance with the specifications described in this document.
- The scale is not designed for weighing people. It is not suitable for medical purposes.

2.7 Obligations of the operating company

It is the responsibility of the operating company to comply with the specifications described in this document as well as with legal and official regulations at the place of use.
Any failure to comply with the safety precautions and instruc-

tions described in this document is considered improper use. KERN & SOHN is not liable for any damage resulting from improper use.

2.8 Required user qualifications

- Assembly, commissioning, servicing and maintenance of the device may only be carried out by qualified personnel. A qualified person is a person with appropriate professional training or qualifications for the activities described. They have in-depth knowledge of the tasks and the relevant safety standards.
- Only trained users may operate, handle and maintain the device. A trained user is a person who has been trained in the use of the device and in the corresponding safety instructions.

2.9 Requirements for the environment of use

In addition to the environmental information in the technical data, observe the following requirements for the environment of use:

- The device must not be operated in environments where there is a risk of corrosion.
- The device must be protected from excessive humidity, steam, spray and dust.
- The device must be protected from excessive moisture caused by condensation. Condensation can occur if the device is moved from a cold environment to a much warmer environment. If such a change of environment cannot be avoided, allow the device to acclimatise for approx. 2 hours before starting it up.
- The device must not be used in environments with aggressive chemicals, gases or liquids.
- The device must not be used in potentially explosive atmospheres or environments where explosives are present.
- The device must not be used in environments subject to severe impacts or vibrations.
- The device must not be exposed to extreme heat or strong temperature fluctuations (e.g. by placing the device next to a heater or in direct sunlight).
- Protect the device from direct draughts.

- Select a location with a stable power supply.
- When choosing the place of use, consider the surrounding environment. Electromagnetic fields and electrostatic charges can affect the weighing result or cause damage.

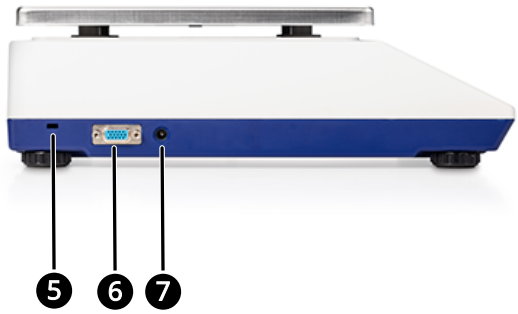
3 Description of the device

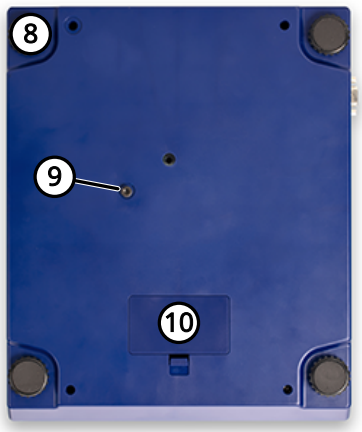
3.1 General product description

This scale is a bench scale. Bench scales are designed for industrial use (e.g. at production workstations, for quality control or during stocktaking).

3.2 Overview of the device

1 Weighing plate
2 Display
3 Keys
4 Level indicator





5 Anti-theft connection (Kensington lock)
6 KUP connection (KERN Universal Port)
7 Mains adapter connection
8 Levelling foot
9 Transport safety lock
10 Battery compartment

3.3 Overview of the keys

Key	Designation in the text	Short keystroke	Long keystroke
ON OFF	**[ON/OFF]** or **[←]**	■ Switch on the scale ■ Switch backlight on/off (only on devices with backlighting) ■ Move up one menu level / Exit menu ■ Previous digit position	■ Switch off the scale

Key	Designation in the text	Short keystroke	Long keystroke
	[CHANGE] or **[➔]**	■ Select menu item and move to the next menu level / Confirm selection ■ Confirm digit and move to the next digit position Application: Weighing ■ Switch between weighing units (when pressed for the first time: set the secondary weighing unit to be displayed) Application: Counting ■ Switch between number of pieces and weight (when pressed for the first time: set the secondary weighing unit to be displayed. Note: If pcs is selected, a reference must then be established.) Application: Tolerance weighing ■ Switch between weighing units (when pressed for the first time: set the secondary weighing unit to be displayed)	Application: Weighing ■ Display gross weight ■ Display tare weight Application: Counting ■ Display gross weight or gross quantity ■ Display tare weight or tare quantity Application: Tolerance weighing ■ Switch the display between gross, net and tare weight
PRINT	**[PRINT]**	■ Send data to a connected peripheral device	
→0←	**[ZERO]**	■ Zero setting	
TARE	**[TARE]** or **[🡻]**	■ Tare ■ Next menu item ■ Decrease digit	■ Open the application menu

Key	Designation in the text	Short keystroke	Long keystroke
F	**[F]** or **[↑]**	■ Function key ➡ *Chapter 6.7 'Assigning of key functions' on page 44* ■ Previous menu item ■ Increase digit	

3.4 Overview of the display

Display / Icon	Designation	Description
◣◢	Indicator: Stability	Displayed when the weight value is stable
>0<	Indicator: Zero	Displayed while the scale is at zero
▬	Indicator: Negative	Displayed when the weight reading is negative
HI	"HI" tolerance mark	Upper tolerance limit exceeded
OK	"OK" tolerance mark	Weight reading within the tolerance limits
LO	"LO" tolerance mark	Value below the lower tolerance limit
PTARE	Indicator: Pre-tare	Displayed when pre-tare is active
HOLD	Indicator: Hold	Displayed when weighing values are held
NET	Indicator: Net	The displayed value is the net weight (shown after taring)
G	Indicator: Gross weight	The displayed value is the gross weight (shown after zero setting)
AP	Indicator: Auto-print	Displayed when the auto-print function is active

Display / Icon	Designation	Description
Σ	Indicator: Total	Displayed when the totalizing function is used
	Indicator: Data transmission	Displayed during data transfer
	Indicator: Wi-Fi	Displayed when connected to Wi-Fi
8	Character on the main display	The main display shows the results or messages generated by the scale
8	Non-relevant digit for verified devices	For verified devices, a small bracket is used to mark the digit that is not relevant with regard to verification.
pcslbFFA %ctg/mol kgmgn dwtoztlh s	Units	Active unit displayed on the right-hand side of the display
	Battery charging indicator	Displayed when running on battery power

3.5 Overview of the adjustment switch / sealing labels

The scale's verification status is invalid if sealing labels are missing

On scales with type approval, the sealing labels affixed indicate that the scales may only be opened and serviced by trained and authorised personnel. If the sealing labels are broken, the verification is no longer valid. National laws and regulations must be observed. In Germany, re-verification is required.

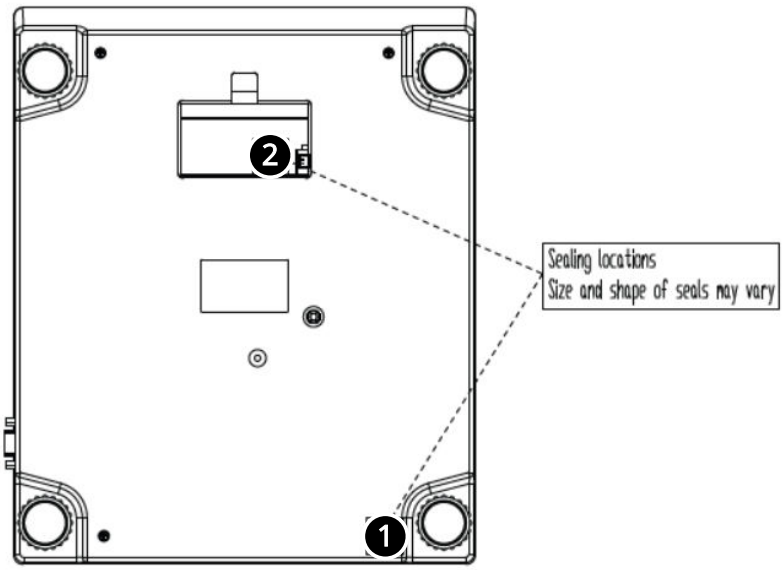


Fig. 2: Location of the sealing labels

1 Sealing label covering the housing screw
2 Sealing label covering the adjustment switch in the battery compartment

4 Unpacking, checking and transporting the device

4.1 Unpacking and checking the device

WARNING

Danger of suffocation due to packaging material

Unattended packaging material can become a suffocation hazard for children or animals.

– Do not leave packaging material unattended, especially if children or animals are around.

– *Save the original packaging and its components for transport, storage or a possible return.*
– *Contact your dealer if you notice any missing parts or damage. Information on warranty and goods return can be found in* ➦ *Chapter 15.1 'Warranty' on page 95.*

1. Check the packaging for visible external damage that may have occurred during shipment.
2. Unpack all parts of the delivery (➦ *Chapter 4.2 'Scope of delivery' on page 25*) and remove the packaging materials.
3. Check that all parts of the delivery are complete and undamaged.

   ➡ You can now transport the device to the place of use. ➦ *Chapter 4.3 'Transporting the device' on page 26*

4.2 Scope of delivery

- Scale
- Weighing plate
- Allen key
- Power supply unit
- Power plug adapter set

- Protective working cover
- Operating instructions

4.3 Transporting the device

NOTICE

Damage due to improper transport

Incorrect transport can damage the device.

General information on transporting scales

- Remove all loads from the weighing plate before transporting the scale.
- Remove all loose components from the device before transporting it.
- Re-attach the transport safety lock before transporting the device. This applies in particular to transport in vehicles.
- Use the original packaging to transport the device over long distances.
- When transporting batteries or rechargeable batteries, the applicable national and international regulations must be observed. Ensure that batteries or rechargeable batteries are protected against short circuits and damage. Do not ship defective batteries or devices containing defective batteries.
- When transporting the scale, hold it by the housing and not by the weighing plate or the weighing plate support.

5 Assembly, installation and commissioning

5.1 Selecting the place of use

The scales are designed to achieve reliable results under normal operating conditions. You can work accurately and quickly if you choose the right location for using your scale.

Please note when choosing the location:

- ➦ *Chapter 18.1 'Technical data' on page 101*
- ➦ *Chapter 2.9 'Requirements for the environment of use' on page 17*

5.2 Installing the device

5.2.1 Safety during installation

DANGER

Electric shock due to live parts

Contact with live parts can lead to electric shock and burns.

- Installation, cleaning, maintenance and servicing work may only be carried out by qualified personnel.
- Disconnect live parts from the power supply or unplug the power plug from the mains.
- Only carry out installation, cleaning, servicing and maintenance work on devices that are switched off and disconnected from the power supply, unless otherwise specified in the relevant instructions.
- Follow the instructions in this document.

5.2.2 Preparing for installation

1. Take the device to the place of use (➦ *Chapter 4.3 'Transporting the device' on page 26*, ➦ *Chapter 2.9 'Requirements for the environment of use' on page 17*)
2. Ensure that all parts included in the scope of delivery, any tools that may be required, and the relevant documentation are at hand.

Allen key

A key with a hexagonal tip that fits into the hexagon socket of the screw head.

5.2.3 Removing the transport safety lock

Remove the transport safety lock

Tool:

- Allen key

1. Remove all loose parts from the scale.
2. Carefully turn the scale over so that the bottom side is facing upwards.
3. Remove the transport safety lock (location: see the illustration below) and keep it in a safe place in case the unit needs to be moved.

   ➡ You have successfully removed the transport safety lock.

Fig. 3: Location of the transport safety lock

5.2.4 Enabling the real-time clock

Only verified models have a real-time clock.

To ensure that the alibi memory stores data correctly, the real-time clock must first be enabled. The real-time clock is not powered on delivery in order to conserve battery life. Follow the steps below to establish a power supply for the real-time clock.

1. Remove all loose parts from the scale.
2. Carefully turn the scale over so that the bottom side is facing upwards.

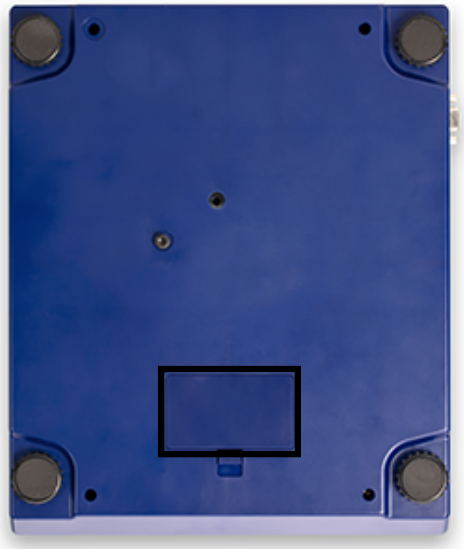


Fig. 4: Battery compartment cover

3. Open the battery compartment cover.
4. Move the slide switch on the button cell housing.
   ➡ The real-time clock is now enabled.
5. Close the battery compartment cover.
6. Switch on the scale.
   ➡ The message <SEtrtc> appears.
   This means that the date and time need to be set.

7. Set the date and time. ➦ *Chapter 6.13 'Setting date and time' on page 47*

> *If the battery is flat, it must be replaced with one of the same type. When inserting the battery, ensure that the polarity is correct.*

5.2.5 Installing the weighing plate

Weighing plate with pre-installed support

1. Remove the weighing plate from its packaging.
2. Place the weighing plate on the scale. Make sure it is positioned correctly.

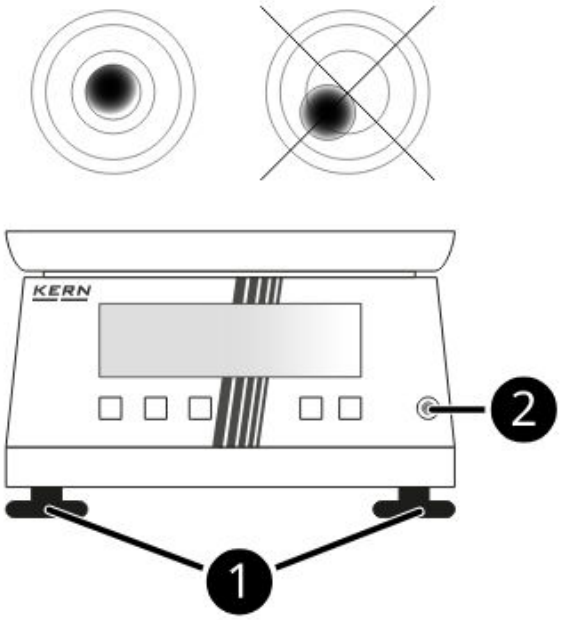
   ➡ You have successfully installed the weighing plate.

5.2.6 Levelling the device

> – *Select a suitable place of use for the scale.* ➦ *Chapter 2.9 'Requirements for the environment of use' on page 17*
> – *Check the levelling regularly.*
> – *Level the scale after moving it to a new location.*

For accurate measurements, it is necessary for the scale to be levelled at its place of use.

1. Position the scale at the place of use.



2. Adjust the levelling feet *1* until the air bubble of the level indicator *2* is in the prescribed circle.

➡ The scale is now ready for use.

5.2.7 Connecting wired peripheral devices

Please use only KERN accessories and printers. These are perfectly suited to your scale.

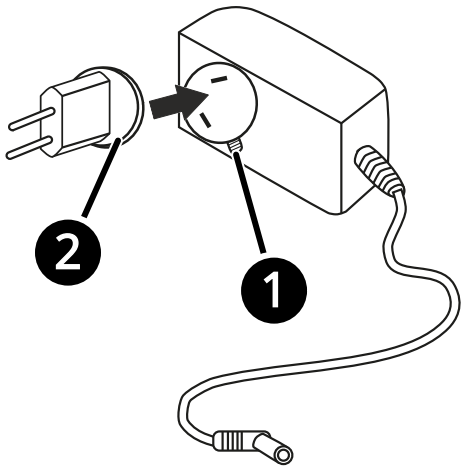
Unplug the scale from the mains before connecting any peripheral devices (e.g. a printer or a PC).

For information on configuring the interfaces, see ➡ *Chapter 7 'Interfaces and data output' on page 49*.

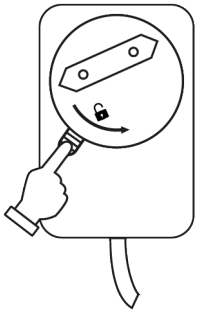
5.2.8 Mains operation

Fitting the power plug adapter

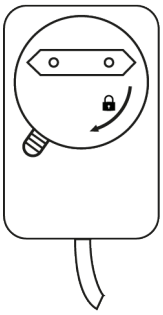
A power plug adapter set is included with the device so that it can be used flexibly in different locations with different power plug standards. The installation of the mains plug adapter is described below.



1. Press the release tab *1*.



2. Insert the power plug adapter *2* so that it fits into the recess.



3. Turn the inserted power plug until the power plug adapter engages.

➡ The power supply unit is now ready for use.

➡ To remove the power plug adapter, press the release tab and proceed in reverse order.

Connecting the power supply to the mains

WARNING

Serious injuries due to damaged power supply units

Damaged power supply units can lead to short circuits, fires and serious injuries.

- Before each use, check the power supply unit and mains cable for visible damage. Do not use the power supply unit if it is damaged.

WARNING

Injuries due to incorrect handling of power supply units

Incorrect handling of power supply units can lead to short circuits, fires and serious injuries.

- Observe the safety precautions for handling power supply units. ➦ *'Safe handling of power supply units and power supplies' on page 13*
- Avoid moisture at the mains connection, power supply unit and socket.
- Only connect the device to a properly installed socket.
- Make sure that the power supply unit cable is never kinked or pinched.
- Ensure that the power supply unit is accessible at all times.
- Ensure that the mains cable does not pose a tripping hazard.
- Only connect the power supply unit to the mains if the information on the device (sticker) and the mains voltage at the place of use are identical.

1. Plug the mains cable connection into the mains connection of the device (for the mains connection, see ➦ *Chapter 3.2 'Overview of the device' on page 19*).
2. Insert the power plug into the socket.

   ➡ The device can now be put into operation. ➦ *Chapter 5.3 'Commissioning the device' on page 36*

5.2.9 Operation with rechargeable battery pack

WARNING

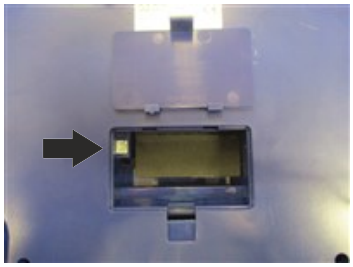
Injuries due to incorrect handling of batteries or rechargeable batteries

Incorrect handling of batteries can lead to short circuits, fires, leaks and injuries.

- Never use batteries or rechargeable batteries that are damaged or deformed.
- Never touch the terminals of batteries or rechargeable batteries with metal objects, as this can lead to short circuits.
- When inserting batteries or rechargeable batteries, ensure that the polarity is correct (positive and negative polarity).
- Do not use different types of batteries or old and new batteries together if several batteries are required for operation. This can lead to damage.
- Only replace batteries or rechargeable batteries with types recommended by the manufacturer.
- Remove the batteries from the device if you wish to store them for a longer period of time. This protects the device from damage caused by any leakage of battery fluid.

The rechargeable battery is available as an optional extra. For further information, please visit our website at ➦ www.kern-sohn.com.

Insert the rechargeable battery



1. Open the battery compartment cover.

2. Connect the rechargeable battery to the socket in the battery compartment.
3. Close the battery compartment cover.

Recharge the battery

WARNING

Serious injuries due to damaged power supply units/chargers

Damaged power supply units/chargers can lead to short circuits, fires and serious injuries.

- Before each use, check the power supply unit/charger and mains cable for any visible damage. Do not use the power supply unit/charger if it is damaged.

WARNING

Injuries due to incorrect handling of power supply units/chargers

Incorrect handling of power supply units/chargers can lead to short circuits, fires and serious injuries.

- Observe the safety precautions for handling power supply units/chargers. ➦ *'Safe handling of power supply units and power supplies' on page 13*
- Avoid moisture at the mains connection, power supply unit/charger and at the socket.
- Only connect the device to a properly installed socket.
- Make sure that the power supply unit/charger cable is never kinked or pinched.
- Make sure that the power supply unit/charger is accessible at all times while the battery is charging.
- Ensure that the mains cable does not pose a tripping hazard.
- Only connect the power supply unit/charger to the mains if the specifications on the device (sticker) match the mains voltage at the place of use.

WARNING

Injuries caused by improper charging of rechargeable batteries

If batteries are not charged correctly, they may catch fire or explode.

- Chargers must not be modified.
- Only use the original charger.
- Observe the charging time specified in the technical data and avoid overcharging.
- Do not charge batteries that are deformed or show other signs of damage.
- In the event of heat build-up, deformation, smoke or burnt smell, disconnect the charger immediately and remove it from service.
- Please observe the general safety instructions regarding batteries and rechargeable batteries. ➦ *'Safe handling of batteries and rechargeable batteries' on page 14*

The battery should be fully charged before first use. You can find the charging time in the technical data ➦ *Chapter 18.1 'Technical data' on page 101*.

- To charge the battery, connect the power supply or charger to the scale.

5.3 Commissioning the device

Measures before commissioning

In order to obtain accurate weighing results with electronic scales, the scale must have reached its operating temperature. During this acclimatisation period (➦ *Chapter 18.1 'Technical data' on page 101*), the scale must be connected to the power supply.

Commissioning procedure

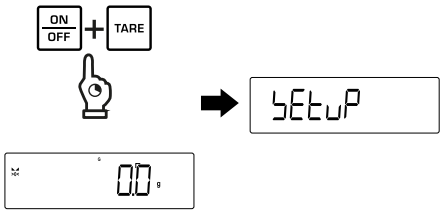
Complete all necessary installation work and preparations before commissioning.

1. Switch on the device. ➦ *Further information on page 66*
2. An adjustment may be required at the installation location at the beginning. ➦ *Chapter 6.3 'Adjustment settings' on page 39*

6 Settings

6.1 Opening and using the setup menu

Open the setup menu



- In operating mode, press and hold **[TARE]** and **[ON/OFF]** simultaneously.
  - ➡ <SEtuP> → <cAL> is displayed.
  - ➡ The scale is in setup menu mode.

Menu navigation

Key	Function
[↑]	Previous menu item
[↓]	Next menu item
[→]	Select menu item and move to the next menu level / Confirm selection
[←]	Move up one menu level / Exit menu

Numerical input

Key	Function
[↑]	Increase digit
[↓]	Decrease digit
[→]	Confirm digit and move to the next digit position
[←]	Previous digit position

6.2 Setup menu overview

Overview of the main menu

The setup menu consists of several levels. The settings apply globally to all applications.

Menu level	Description	Further information
<cAL>	Adjusting	➡ *Chapter 6.3 'Adjustment settings' on page 39*
<coN>	Interface parameters	➡ *Chapter 7.3.2 'Setting interface parameters' on page 50*
<Pr int>	Data output and printing	➡ *Chapter 7.4.1 'Overview of output settings' on page 51*
<KEYton>	Keypad sound	➡ *Chapter 6.4 'Setting the acoustic signal' on page 43*
<AutoFF>	Automatic shut-off function	➡ *Chapter 6.5 'Setting the automatic switch-off function' on page 43*
<cAr>	Automatic switch-on function	➡ *Chapter 6.6 'Setting the automatic switch-on function' on page 43*
<buttons>	Assignment of keys	➡ *Chapter 6.7 'Assigning of key functions' on page 44*
<bL iGht>	Backlighting	➡ *Chapter 6.8 'Adjusting the backlight' on page 45*
<tArErG>	Taring range (not available on verified models)	➡ *Chapter 6.9 'Setting the taring range' on page 45*
<ZL iN it>	Zero-setting range (not available on verified models)	➡ *Chapter 6.10 'Setting the zero range (Zero Limit)' on page 46*
<ZtrAcK>	Automatic zero tracking (not available on verified models)	➡ *Chapter 6.11 'Setting automatic zero tracking' on page 46*
<F iLtEr>	Speed of display	➡ *Chapter 6.12 'Setting the display speed / filter' on page 47*
<dAt iME>	Date and time of the real-time clock	➡ *Chapter 6.13 'Setting date and time' on page 47*

Menu level	Description	Further information
<un its>	Available units	➡ *Chapter 6.14 'Setting the availability of display units' on page 48*
<ΠodEs>	Available applications	➡ *Chapter 6.15 'Setting the availability of applications' on page 48*
<rESEt>	Restore factory settings (except date and time)	➡ *Chapter 6.16 'Restoring factory settings' on page 48*

6.3 Adjustment settings

The acceleration due to gravity varies at different locations on earth. For exact weighing results, the scale must be adjusted to the prevailing acceleration due to gravity at the location where it is installed. The scale must have reached its operating temperature before it can be adjusted.

Adjustment of the scale is required in the following cases:

- Before initial commissioning, if the scale has not already been adjusted to the installation location at the factory.
- After every change of location.
- After a significant change in environmental conditions (e.g. temperature or humidity).
- If the scale has been disconnected from the power supply.

To ensure accurate measurements, it is also recommended that the scale is adjusted regularly.

NOTICE

Incorrect weighing results

- Avoid unstable environmental conditions during adjustment (e.g. vibrations or air draught).
- Ensure that the scale has reached its operating temperature. ➦ *Chapter 18.1 'Technical data' on page 101*
- Only carry out the adjusting procedure with the standard weighing plate in place.
- During external adjusting, ensure that only the adjustment weight is on the weighing plate without any other load.
- Only handle adjustment weights with tweezers, weight handles or gloves. Avoid direct skin contact between your hands and adjustment weights.

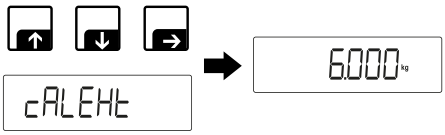
For verified scales, adjusting with external weights is blocked. To remove the access lock, the sealing label must be destroyed and then the adjustment switch must be activated. However, this results in a loss of verification validity. The scale must then be re-verified and sealed by an authorised body before it can be approved for use in applications subject to mandatory verification.

6.3.1 Adjusting procedure with an external adjustment weight

Function disabled for verified devices

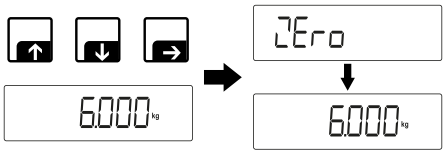
This function is only available on devices without verification. You can find out which models are verified and which are non-verified in the technical data. ➦ *Chapter 18.1 'Technical data' on page 101*

To carry out the following steps, the scale must be in the setup menu mode.



1. Select <cAL> → <cALEHt> (**[↑]** / **[↓]**) and confirm (**[➔]**).

   ➡ The first applicable adjustment weight is displayed.



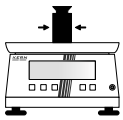
2. Select the required adjustment weight (**[↑]** / **[↓]**) and confirm (**[➔]**).

   (Information on adjustment weights ➦ *Chapter 18.1 'Technical data' on page 101*).

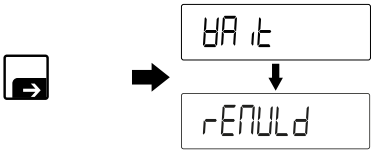
   ➡ <2Ero> is displayed.

3. Make sure the weighing plate is free of any load and confirm by pressing **[➔]**.

   ➡ <PutLd> → and the value of the adjustment weight are displayed.

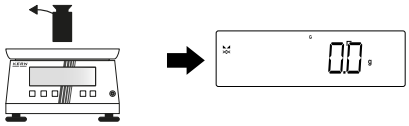


4. Place the adjustment weight in the centre of the scale.



5. Confirm by pressing **[➔]**.

   ➡ <WA it> → <rEMULd> is displayed.



6. Remove the adjustment weight.

   ➡ The scale switches to operating mode.

   ➡ The adjusting process is complete.

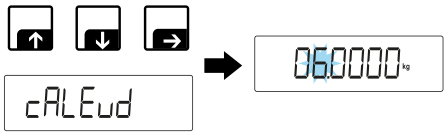
If an adjustment error occurs (e.g. additional items on the weighing plate), the error message <WronG> will appear. In this case, restart the scale and repeat the adjusting procedure.

6.3.2 Adjusting procedure with a user-defined adjustment weight

Function disabled for verified devices

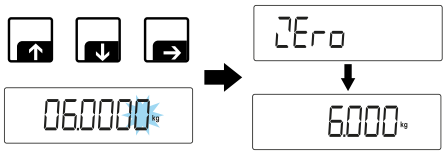
This function is only available on devices without verification. You can find out which models are verified and which are non-verified in the technical data. ➦ *Chapter 18.1 'Technical data' on page 101*

To carry out the following steps, the scale must be in the setup menu mode.



1. Select <cAL> → <cALEud> (**[↑]** / **[↓]**) and confirm (**[➔]**).

➡ A numerical input field appears, and the active digit is displayed flashing.

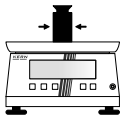


2. Enter the weight value (select a number: **[↑]** / **[↓]**, next number: **[➔]**) and confirm (**[➔]**).

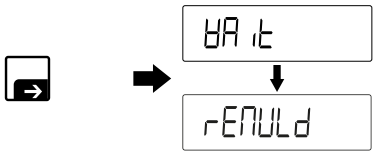
➡ <ZEro> is displayed.

3. Make sure the weighing plate is free of any load and confirm by pressing **[➔]**.

➡ <PutLd> → and the value of the adjustment weight are displayed.

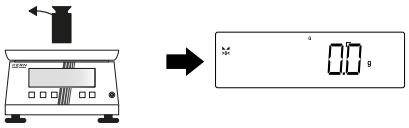


4. Place the adjustment weight in the centre of the scale.



5. Confirm by pressing **[➔]**.

➡ <WAit> → <rEMULd> is displayed.



6. Remove the adjustment weight.

➡ The scale switches to operating mode.

➡ The adjusting process is complete.

If an adjustment error occurs (e.g. additional items on the weighing plate), the error message <WrongC> will appear. In this case, restart the scale and repeat the adjusting procedure.

6.4 Setting the acoustic signal

<KEYton>

Settings

- <on>*: keypad sound enabled
- <oFF>*: keypad sound disabled

6.5 Setting the automatic switch-off function

<AutoFF>

Submenu	Description	Settings
<ModE>	Set switch-off mode	■ <oFF>*: automatic switch-off function disabled ■ <Auto>: automatic switch-off after the time set at <t ME>, provided there is no change of load ■ <onLY0>: automatic switch-off only when the display shows zero
<t ME>	Set switch-off time	■ <30S>* ■ < 1M in> ■ <2M in> ■ <5M in> ■ <30M in> ■ <60M in>

6.6 Setting the automatic switch-on function

<Auton>

Settings

- <on>: switch on the device automatically after connecting it to the mains voltage
- <oFF>*: disable the automatic switch-on function

6.7 Assigning of key functions

Certain scale keys can be programmed to perform different functions. This allows quick access to specific functions in operating mode.

<buttons>

Submenu	Description	Settings	
Key labelling (e.g. <chAnGE> (**[CHANGE]**) or <F-KEY> (**[F]**), depending on the device)	Change the functionality of the selected key	<sPush>: short keystroke <LPush>: long keystroke	■ <toGGLE>: change the unit displayed ■ <un it>: set weighing unit ■ <shoWGt>: display gross and tare values ■ <hoLd>: execute hold function (only displayed when the "Weighing" application is active) ■ <ModE>: change application ■ <PtArE>: open pre-tare settings ■ <chEcK>: When the "Counting" application is active: set the limits for piece counting When the "Tolerance weighing" application is active: open the settings menu for tolerances

Submenu	Description	Settings	
			■ <rEF>: set reference quantity (only displayed when the "Counting" application is active) ■ <oFF>: key disabled

6.8 Adjusting the backlight

<bL iGht>

Submenu	Description	Settings
<ModE>	Set the lighting mode	■ <ALWAYS>*: backlight always on ■ <t iMEr>: backlight switches off automatically after the time set at <t iME>, provided there is no change of load ■ <mobL>: backlight off
<t iME>	Set the lighting switch-off time	■ <5S>* ■ <30S> ■ < 1M in> ■ <2M in> ■ <5M in> ■ <30M in>

6.9 Setting the taring range

<tArErG>

Function disabled for verified devices

This function is only available on devices without verification. You can find out which models are verified and which are non-verified in the technical data. ➡ *Chapter 18.1 'Technical data' on page 101*

This allows the maximum taring range to be set between 10 % and 100 % (default value = 99 %). To do so, enter the taring range as a numerical value.

6.10 Setting the zero range (Zero Limit)

<ZL in it>

Function disabled for verified devices

This function is only available on devices without verification. You can find out which models are verified and which are non-verified in the technical data. *➡ Chapter 18.1 'Technical data' on page 101*

This allows the maximum zero range to be set between 1 % and 100 % (default value = 2 %). To do so, enter the zero range as a numerical value.

6.11 Setting automatic zero tracking

<ZtrAcA>

Function disabled for verified devices

This function is only available on devices without verification. You can find out which models are verified and which are non-verified in the technical data. *➡ Chapter 18.1 'Technical data' on page 101*

Settings

- <on>*: automatic zero tracking (<= 3d) enabled
- <oFF>: automatic zero tracking disabled

If small quantities of the weighing material are removed or added, the stability compensation may produce incorrect results (e.g. in cases of slow liquid outflow or evaporation). This function should therefore be deactivated for dosing operations involving minor weight fluctuations.

6.12 Setting the display speed / filter

<FILTER>

Function disabled for verified devices

This function is only available on devices without verification. You can find out which models are verified and which are non-verified in the technical data. ➦ *Chapter 18.1 'Technical data' on page 101*

This allows the display speed to be set between 0 and 100 (0 = very fast for quiet environments, 100 = very slow for dynamic environments). To set the filter, enter a numerical value.

6.13 Setting date and time

<DATE>

Submenu	Description	Settings
<SET>	Set date and time	**1.** The date and time are displayed one after the other. Once the display stops at the time, you must confirm it. ➡ A numeric selection field appears. **2.** Enter data: ■ <YY>: year ■ <MM>: month ■ <dd>: day ■ <hh>: hour ■ <MM>: minute ■ <SS>: second ➡ The scale switches to operating mode.
<DAFORM>	Set date display format	■ <YMd>: year - month - day ■ <MdY>*: month - day - year ■ <dMY>: day - month - year
<TIFORM>	Set time display format	■ <24h>* ■ < 12h>

6.14 Setting the availability of display units

These settings allow you to determine which units are available in the application menu. For example, you can hide units that are not relevant to the application field.

<un its>

Submenu	Description	Settings
For available units, see technical data	Selection of unit	■ <on>: make a unit available ■ <oFF>: lock unit

6.15 Setting the availability of applications

These settings allow you to determine which applications are available in the application menu. For example, you can hide applications that are not relevant to the application field.

Settings for an application can only be adjusted if it is not actively running in operating mode.

<ΠodEs>

Submenu	Description	Settings
For available applications, see technical data	Selection of application	■ <on>: make application available ■ <oFF>: lock application

6.16 Restoring factory settings

<rESEt>

Once you have selected <rESEt>, the message <SurE> will appear on the display. Once you have confirmed this message, the scale will switch off automatically. The next time you start the device, the settings will have been reset to their factory defaults. However, date and time will not be reset.

7 Interfaces and data output

7.1 Optional software

BalanceConnection

BalanceConnection enables communication between scales and peripheral devices. This software supports various interfaces and protocols to ensure flexible integration into existing systems. It is particularly useful for applications where centralised collection and processing of measurement data is required.

EasyTouch

With EasyTouch, your weighing data is sent directly to your PC, laptop or tablet for immediate further processing. EasyTouch also allows you to add other useful functions to your scale and tailor it perfectly to your specific field of application.

For further information about KERN software, please visit our website at ➦ *www.kern-sohn.com*.

7.2 Description of the interfaces

KUP (KERN Universal Port)

You can find all available KUP interface adapters in our online store at ➦ *www.kern-sohn.com*. Installation and setup are described in the relevant interface adapter documentation.

7.3 Setting up interfaces

7.3.1 Connecting wired peripheral devices

1. Switch off the scale and the peripheral device.
2. Disconnect the scale from the mains voltage.
3. Connect the KUP adapter to the scale.
4. Connect the peripheral device to the scale using a cable.
5. Reconnect the scale to the mains voltage.
6. Switch on the scale and the peripheral device.

➡ The interface is now ready for use. You may need to configure the interface parameters first. ➦ *Chapter 7.3.2 'Setting interface parameters' on page 50*

7.3.2 Setting interface parameters

<con>

The settings options are only displayed once the interfaces have been fully initialised. During initialisation, the message <buSY> is displayed. This may take a short while.

Only the settings for the connected interface are displayed.

Submenu	Submenu	Description	Settings
<rS232> or <uSb-d>	<bAud>	Baud rate	■ <600> ■ < 1200> ■ <2400> ■ <4800> ■ <9600>* ■ < 14400> ■ < 19200> ■ <38400> ■ <57600> ■ < 115200> ■ <230400>
	<dAtA>	Number of data bits	■ <7db its> ■ <8db its>*
	<PAr ity>	Parity	■ <nonE>*: none ■ <odd>: odd ■ <EUEn>: even ■ <SPAcE>: space ■ <MArK>: padding character
	<StoP>	Number of stop bits	■ < 1Sb it>* ■ <2Sb its>
	<hAndSh>	Handshake	■ <nonE>*

Submenu	Submenu	Description	Settings
	<Protoc>	Protocol	<AcP>*
<LAn>	<iP-Adr>	Display current IP address	
	<SubnM>	Display current subnet mask	
	<GtWAY>	Display current gateway address	
	<rESEt>	Reset	

7.4 Configuring data output

7.4.1 Overview of output settings

<Pr int>

Submenu	Submenu	Submenu	Description	Settings
<intFcE>			Select data output interface (only connected interfaces are shown)	■ <rS232>* ■ <usb-d> ■ <AnA-oP> ■ <WLAn> ■ <LAn> ■ <bLE>
<SuM>			Enable/disable totalizing function	■ <on>: enabled ■ <oFF>*: disabled

Submenu	Submenu	Sub-menu	Description	Settings	
<PrModE>	<tr iG>	<MAnu AL>	Data output by pressing **[PRINT]**	■ <on>*: enabled ■ <oFF>: disabled	
		<AutO Pr>	Automatic data output if value is stable and positive	<on>: enabled	<CrAnGE>: factor for d. This factor, when multiplied by d, gives the range of values that will not be printed.
				<oFF>*: disabled	
		<cont>	Continuous data output (not available on verified models)	<on>: enabled	< intErU>: output interval in ms
					<PZEro>: output when the scale is unloaded
					<PStAb>: transfer stable values only (Cannot be changed on verified devices; set to <on> by default.)
				<oFF>*: disabled	
	<WE iGht>	<SGLP rt>	Output parameter: displayed value	■ <on>: displayed weight value is output ■ <oFF>*: output disabled	

Submenu	Submenu	Sub-menu	Description	Settings
		<GntPrt>	Output parameters: Gross, Net, Tare (can be combined as required)	<Gross>: Gross ■ <on>*: enabled ■ <oFF>: disabled
				<nEt>: Net ■ <on>*: enabled ■ <oFF>: disabled
				<tArE>: Tare ■ <on>*: enabled ■ <oFF>: disabled
				<FormAt>: format ■ <LonG>: full designation ■ <short>*: abbreviated designation
	<LAYout>		Configure output layout	➡ *Chapter 7.4.3 'Print settings' on page 57*
	<rESEt>		Reset output settings	■ <no>: do not reset settings ■ <YES>: reset settings

7.4.2 Setting output parameters

- *Once an output mode has been enabled under <tr iG>, the other modes are automatically disabled. It is not possible to use multiple output modes at the same time.*
- *Configure the values to be output under <PrModE> → <WE iGht>.*
  ➡ Chapter 7.4.1 'Overview of output settings' on page 51

Manual data output
<MAnuAL>

If manual data output is selected, printing will only start after pressing **[PRINT]**.

1. Open the setup menu.
2. Select <Pr int> → <PrModE> → <tr iG> → <MAnuAL> → <on> by pressing (**[↑]** / **[↓]**) and confirm your selection (**[→]**).
3. Press **[←]** repeatedly to exit the menu.
4. If necessary, place the weighing container on the scale and perform taring.
5. Place the load on the weighing plate.
6. Press **[PRINT]**.

   ➡ The result is displayed.

Automatic data output
<AutoPr>

If automatic data output is enabled, printing starts as soon as the weight value is stable and positive.

In the settings for <ZrAnGE>, a factor for d can be defined to specify the range of values that will not be output.

Example	<ZrAnGE> = 5 d = 0.1 g Result: values of 0.5 g or less will not be printed

1. Open the setup menu.

2. Select <Pr int> → <PrModE> → <tr iG> → <AutoPr> → <on> by pressing (**[↑]** / **[↓]**) and confirm your selection (**[➔]**).

   ➡ <ChrAnGE> is displayed.

3. Confirm by pressing **[➔]**.

   ➡ <oFF> is displayed.

4. Select the desired factor (**[↑]** / **[↓]**) and confirm (**[➔]**).

<oFF>*	no factor
< 1>	1 x d
<2>	2 x d
<3>	3 x d
<4>	4 x d
<5>	5 x d

   ➡ <ChrAnGE> is displayed.

5. Press **[🡐]** repeatedly to exit the menu.

6. If necessary, place the weighing container on the scale and perform taring.

7. Place the load on the weighing plate.

   ➡ As soon as the "Stability" indicator (◣◢) appears, the result is displayed.

New output is only possible once the display has returned to zero and stabilised (remove the load from the scale, wait for the → zero display and for the "Stability" indicator (◣◢) to appear).

Continuous data output
<cont>

Verified devices only transmit stable values. The <PStAb> *function cannot be disabled on verified devices.*

1. Open the setup menu.

2. Select <Pr int> → <PrModE> → <tr iG> → <cont> → <on> by pressing (**[↑]** / **[↓]**) and confirm your selection (**[➔]**).

   ➡ < intErU> is displayed.

3. Confirm by pressing **[➔]**.

   ➡ The display switches to numeric input.

   ➡ The most recent setting is displayed flashing

4. Enter the interval in milliseconds (select a number: **[↑]** / **[↓]**, next number: **[➔]**) and confirm (**[➔]**).

   ➡ The display switches to < intErU>.

5. Select <PCErO> by pressing (**[↑]** / **[↓]**) and confirm (**[➔]**).

6. Select the desired setting (**[↑]** / **[↓]**) and confirm (**[➔]**).

<on>	continuous output of 0 values (unloaded scale)
<oFF>	no output of 0 values (unloaded scale)

   ➡ The display switches to <PCErO>.

7. Press **[←]** repeatedly to exit the menu.

8. If necessary, place the weighing container on the scale and perform taring.

9. Place the load on the weighing plate.

   ➡ The weight values are output at defined intervals.

7.4.3 Print settings

<Pr int>→<LAYout>

Submenu		Description	Settings
<nonE>		Enable / disable default layout	■ <on>*: enable default layout (other layouts are automatically disabled) ■ <oFF>: disable default layout (default layout is automatically disabled when another layout is enabled)
<uSEr>	<ModEL>	Print the model name of the scale	■ <oFF>*: disable custom layout setting (custom layout is automatically disabled when another layout is enabled) ■ <on>: enable custom layout setting (other layouts are automatically disabled)
	<SEr iAL>	Print the scale's serial number	
	<AL id>	Print alibi ID (only for scales with an alibi memory)	
	<dAtE>	Print the date (only for scales with an alibi memory)	
	<t iME>	Print the time (only for scales with an alibi memory)	

Submenu		Description	Settings
<GLP>		Enable/disable GLP-compliant output	■ <oFF>*: disable GLP-compliant output (this is automatically disabled when <nonE> or <uSEr> is enabled) ■ <on>: enable GLP-compliant output (<nonE> or <uSEr> are automatically disabled)

Print layouts (examples)

The print output depends on the following settings:

- Settings in <SuM>, <WE IGHt> and <LAYout>
- Selected display unit

The wide range of setting options allows for a variety of possible print layouts. The following sections provide some examples of settings and print layouts.

Print layout: standard

Settings

- Standard unit
- <CntPrt>
  - <Gross>→<on>
  - <nEt>→<on>
  - <tArE>→<on>
  - <FormAt>→<short>

N:	500.0 g
T:	0.0 g
G:	500.0 g

Fig. 5: Simple weighing

N:	500.0 g
T:	0.0 g
G:	500.0 g
PER:	100.0 %

Fig. 6: Percentage weighing

N:	500.0 g
T:	0.0 g
G:	500.0 g
PCS:	5 pcs
UW:	100.0 g
REF:	5 pcs

Fig. 7: Counting

Settings

- Standard unit
- <CntPrt>
  - <Gross>→<on>
  - <nEt>→<on>
  - <tArE>→<on>
  - <FormAt>→<LonG>

Net weight:	500.0 g
Tare weight:	0.0 g
Gross weight:	500.0 g

Fig. 8: Simple weighing

Net weight:	500.0 g
Tare weight:	0.0 g
Gross weight:	500.0 g
FFA:	550.0 ffa

Fig. 9: Multiplication (FFA)

Print layout: single value (net value)

Settings

- Standard unit
- <bGLPrt>→<on>

```
                    500.0 g
_ __ __ __ __ __ __ _
 PCS:                5 pcs
 UW:               100.0 g
 REF:                5 pcs
_ __ __ __ __ __ __ _
                    500.0 g
 PER:              100.0 %
```

Fig. 10: Single value (designation varies depending on the unit setting)

Print layout: GLP

```
 TYPE        PCJ 6000-1M
   SN                N/A
BALID                N/A
 ALIID               1003
- - - - - - - - - - - - - - - - - -
 DATE        2025 Jan 28
 TIME           11:12:45
- - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -
                 500.1 g
- - - - - - - - - - - - - - - - - -
 -SIGNATURE-

- - - - - - - - - - - - - - - - - -
```

Fig. 11: GLP printout

The **text in bold** can be customized by changing the settings for <HE iGht> and unit.

Print layout: custom

```
Model No:     PCJ 6000-1M
Serial No:            N/A
                 500.1 g
```

Fig. 12: Custom printout

The model and serial number can be selected or deselected individually. "N/A" appears if no serial number has been set.

The **text in bold** can be customized by changing the settings for <HE iGht> and unit.

Print layout: totalization

Layout	<GLP>	<uSEr>	<nonE>
Header	- - - - - - - - - - - - - - - - - - ADDON MODE - - - - - - - - - - - - - - - - - - TYPE PCJ 6000-1M SN N/A BALID N/A ALIID 959 - - - - - - - - - - - - - - - - - - DATE 2025 Jan 28 TIME 11:12:45 -	Model No: PCJ 6000-1M Serial No: N/A	-
Data	No. = 1 Net weight: 0.0 g Gross weight: 0.0 g TOTAL = 0.0 g No. = 2 Net weight: 0.0 g Gross weight: 0.0 g TOTAL = 0.0 g		
Total	- N001 = 0.0 g N002 = 0.0 g N003 = 0.0 g N004 = 0.0 g TOTAL = 0.0 g	No. = 3 TOTAL = 0.0 g	
Footer	- - - - - - - - - - - - - - - - - - -SIGNATURE- - - - - - - - - - - - - - - - - - -	-	

Layout	<uSEr>	<nonE>
Header	Model No: PCJ 6000-1M Serial No: N/A	-
Data	No. = 1 Net weight: 0.0 g Gross weight: 0.0 g TOTAL = 0.0 g No. = 2 Net weight: 0.0 g Gross weight: 0.0 g TOTAL = 0.0 g	
Total	No. = 3 TOTAL = 0.0 g	
Footer	-	

7.5 KCP - KERN Communications Protocol (KERN interface protocol)

KCP is a standardised interface command set for KERN scales, which allows users to retrieve and control a wide range of parameters and device functions. This makes it very easy to connect KERN devices with KCP to computers, industrial control systems and other digital systems. A detailed description can be found in the “KERN Communications Protocol” manual, available in the download section of our KERN website (➡ *www.kern-sohn.com*).

KCP is based on simple ASCII commands and responses. Each interaction consists of a command, which may include arguments separated by spaces, and ends with <CR> <LF>.

You can query the KCP commands supported by your scale by sending the command „I0“ followed by <CR><LF>.

Tab. 1: Selection of commonly used KCP commands

Command	Description
I0	Show all implemented KCP commands
S	Send a stable value

Command	Description
SI	Send current value (even if unstable)
SIR	Send the current value (even if unstable) and repeat
T	Tare
Z	Zero setting

Example: possible responses to the command "S"

Possible answer	Description
S␣S␣␣␣␣100.00␣g	The command has been executed successfully. A stable weight value is returned.
S␣I	The menu is open, another command is currently being executed, or a timeout has been reached.
S␣+ or S␣-	Overload or underload

7.6 Alibi memory

Weighings subject to verification that are analysed and processed via a connected PC (e.g. printing a delivery note via a PC rather than via a printer connected directly to the scale) require, in accordance with the Weights and Measures Act, electronic archiving on a verifiable, tamper-proof data storage device. The stored data can be retrieved and displayed via the PC at any time.

Functions of the alibi memory:

- **Storage capacity:** up to 250,000 weighing results. Once the memory is full, the oldest IDs will be overwritten (starting with the first ID).
- **Saving: [PRINT]** key or "MEMPRT" command in the KCP. The following data is saved:
  - Weight value (N, G, T)
  - Date and time
  - Unique alibi ID

- **Data output:** The alibi ID is output for identification purposes.
- **Retrieving stored data:** Individual IDs or ranges of IDs can be retrieved using the KCP command „`MEMQID`“.
  - `MEMQID 15`: returns the record with ID 15.
  - `MEMQID 15 20`: returns records with IDs 15 to 20.

A detailed description can be found in the manual “KERN Communications Protocol”, available in the downloads section of our website (➡ *www.kern-sohn.com*).

Protection of stored data

- Once saved, each record is immediately read back and checked byte by byte. If errors are found, the record is marked as invalid. Error-free records can be printed if required.
- A checksum protection mechanism is included in each data record.
- Printed information is read exclusively from the checksum memory, not from the buffer.

Measures to prevent data loss

- The memory is write-protected during the start-up process.
- Before a record is saved, a write authorisation procedure is carried out.
- Once saved, a write protection is immediately applied (prior to verification).
- The memory provides a data retention period of at least 20 years.

8 Basic operation

8.1 Switching on the device

WARNING

Serious injuries due to damaged power supply units

Damaged power supply units can lead to short circuits, fires and serious injuries.

- Before each use, check the power supply unit and mains cable for visible damage. Do not use the power supply unit if it is damaged.

WARNING

Injuries due to incorrect handling of power supply units

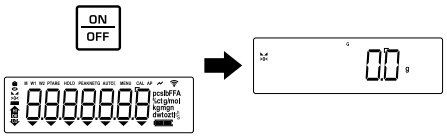
Incorrect handling of power supply units can lead to short circuits, fires and serious injuries.

- Observe the safety precautions for handling power supply units. ➦ *'Safe handling of power supply units and power supplies' on page 13*
- Avoid moisture at the mains connection, power supply unit and socket.
- Only connect the device to a properly installed socket.
- Make sure that the power supply unit cable is never kinked or pinched.
- Ensure that the power supply unit is accessible at all times.
- Ensure that the mains cable does not pose a tripping hazard.
- Only connect the power supply unit to the mains if the information on the device (sticker) and the mains voltage at the place of use are identical.

NOTICE

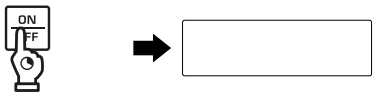
Incorrect weighing results

Ensure that the scale has reached its operating temperature before you start weighing. ➦ *Chapter 18.1 'Technical data' on page 101*



- Press **[ON-OFF]**.
  - ➡ The display lights up.
  - ➡ The scale is ready for operation.

8.2 Switching off the device

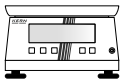


- Press and hold **[ON-OFF]**.
  - ➡ The display switches off.
  - ➡ The scale is switched off.

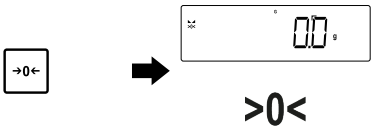
8.3 Zero setting

Zero setting a scale sets the display to zero so that no weight is displayed when the weighing plate is unloaded. This ensures measurement accuracy by compensating for slight deviations or external influences.

Zero setting is only possible within +/- 2 % of the maximum weighing range. An error message appears if the value is above or below this range limit. ➦ *Chapter 17.1 'Error messages' on page 98*



1. Unload the scale.



2. Press **[ZERO]**.

➡ Zero and the "Zero display" indicator (**>0<**) are displayed.

➡ Scale is set to zero.

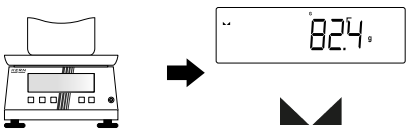
8.4 Taring

At the touch of a button, the tare weight of any weighing container can be compensated so only the net weight of the weighed material will be displayed in subsequent weighing operations.

- *After removing the container, the weight of the container appears as a negative value.*
- *To delete the stored tare value, remove the load from the weighing plate and tare or zero the unloaded scale.*
- *The taring process can be repeated any number of times, for example when weighing several components to form a mixture (add-on weighing). The limit is reached when the taring range is fully utilised.*
- *With the PRE-TARE function, a tare weight can be saved permanently.* *➡ Chapter 8.4.2 'Saving a known tare weight (pre-tare)' on page 68*

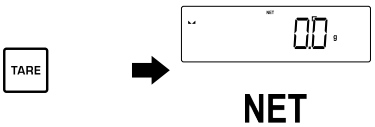
8.4.1 Tare

Tare



1. Place the empty container on the weighing plate.

➡ The weight of the container and the "Stability" indicator (◣◢) are displayed.

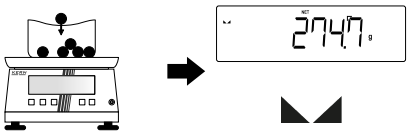


2. Press **[TARE]**.

➡ The zero display and the "Net weight" indicator (**NET**) are displayed.

➡ The weight of the container is stored as a tare.

Weighing with tare



3. Fill the material to be weighed into the container.

➡ The weight value and the "Stability" indicator ( ) are displayed.

➡ The result can be read.

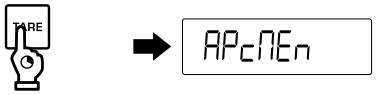
8.4.2 Saving a known tare weight (pre-tare)

The pre-tare function allows the weight of a container to be permanently stored in the scale. This is helpful in processes where containers of the same weight are used.

- *The tare weight remains valid until a new tare weight is saved or the tare weight is deleted.*
- *A previously stored tare weight can be recalled: open the application menu and select* <PtArE> → <rEcALL>.
- *There are two ways to delete the tare weight:*
  - *Unload the scale and press* **[TARE]**.
  - *Open the application menu and go to* <PtArE> → <cLEAr>.

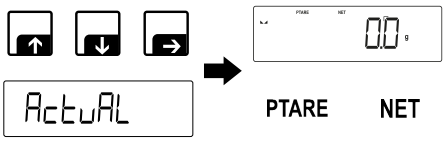
Set and save tare weight

1. Place the empty container on the weighing plate.



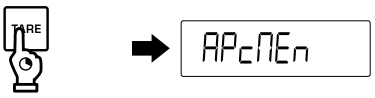
2. Press and hold **[TARE]**.

➡ The application menu opens.

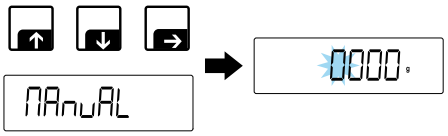


3. Select <PtArE> → <ActuAL> by pressing **[↑]** / **[↓]** and confirm (**[→]**).
   - ➡ The zero display and the "Pre-tare" indicator (**PTARE**) as well as the "Net weight" indicator (**NET**) are displayed.
   - ➡ The tare weight has been saved.

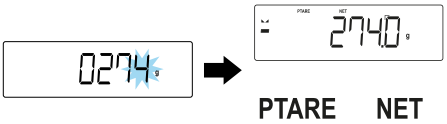
Enter tare weight manually



1. Press and hold **[TARE]**.
   - ➡ The application menu opens.



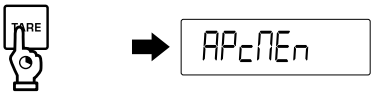
2. Select <PtArE> → <MAnuAL> by pressing **[↑]** / **[↓]** and confirm (**[→]**).
   - ➡ The display switches to numeric input.



3. Enter the tare weight (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).
   - ➡ The "Pre-tare" indicator (**PTARE**) and the "Net weight" indicator (**NET**) are displayed.
   - ➡ The tare weight has been saved and will be displayed as a negative value.
   - ➡ Weighing can now be carried out using the appropriate container.

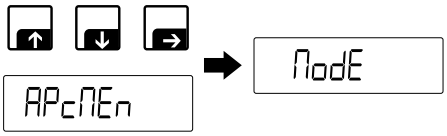
8.5 Selecting an application

Open the application menu

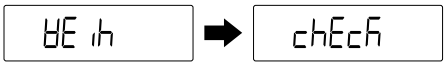


1. Press and hold **[TARE]**.
   - ➡ <APcMEn> followed by the currently active application is displayed.
   - ➡ The scale is in application menu mode.

Select application



2. Select <ModE> (**[↑]** / **[↓]**) and confirm (**[→]**).
   - ➡ The available applications are displayed.



3. Select the desired application (**[↑]** / **[↓]**) and confirm (**[→]**).

<WE ih>	Weighing ➦ *Chapter 9 'Weighing application' on page 71*
<count>	Counting ➦ *Chapter 10 'Counting application' on page 75*
<chEcH>	Tolerance weighing ➦ *Chapter 11 'Tolerance weighing application' on page 85*

➡ The scale returns to operating mode.

➡ The application is now active.

Once an application has been selected, the device returns to operating mode. You must then open the application menu again to view the application-specific settings.

9 Weighing application

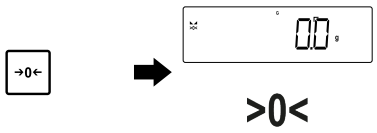
Instructions for zero setting and taring are provided in ➦ *Chapter 8 'Basic operation' on page 65*. Further specific setting options can be found in the following chapters.

9.1 Overview of the "Weighing" application menu

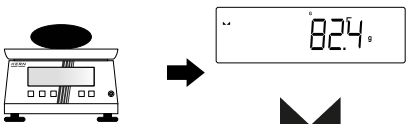
Level 1	Description	Further information
<PtArE>	Save known tare weight (pre-tare)	➦ *Chapter 8.4.2 'Saving a known tare weight (pre-tare)' on page 68*
<hoLd>	Hold reading (data hold)	➦ *Chapter 9.3 'Hold function' on page 71*
<un it>	Set weighing units	➦ *Chapter 6.14 'Setting the availability of display units' on page 48*
<ΠodE>	Select application	➦ *Chapter 8.5 'Selecting an application' on page 69*

9.2 Simple weighing

To use this function, the "Weighing" application must be active.



1. Check whether the display reads zero and, if necessary, reset it to zero using **[ZERO]**.



2. Place the load on the weighing plate.

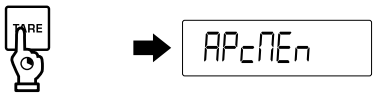
➦ The weight value and the "Stability" indicator (◣◢) are displayed.

➦ The result can be read.

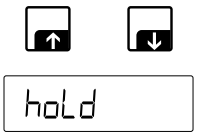
9.3 Hold function

The hold function allows you to 'freeze' the displayed weight. Once the load is removed from the scale, the weight value remains visible on the display for 10 seconds.

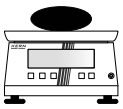
To use this function, the "Weighing" application must be active.



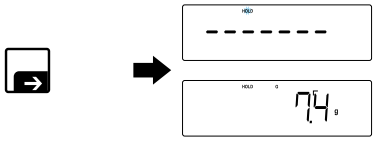
1. Press and hold **[TARE]**.
   ➡ The application menu opens.



2. Select <hoLd> by pressing **[↑]** / **[↓]**, but do not confirm yet.



3. Place the load on the scale.



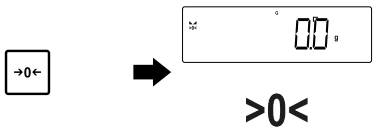
4. Confirm by pressing **[➔]**.
   ➡ The first stable weight reading is 'frozen' and indicated by the "Hold" symbol (**HOLD**).

> *For quicker access, the hold function can be assigned to a key.*

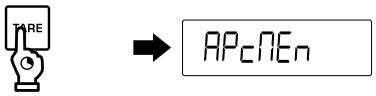
9.4 Percentage weighing

The "Percentage weighing" function allows you to calculate the percentage of the sample weight in relation to a reference weight.

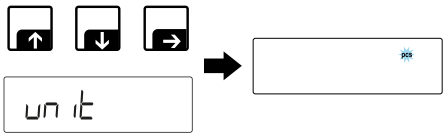
To use this function, the "Weighing" application must be active.



1. Check whether the display reads zero and, if necessary, reset it to zero using **[ZERO]**.

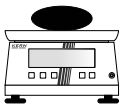


2. Press and hold **[TARE]**.
   ➡ The application menu opens.

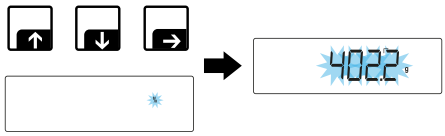


3. Select <un it> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The display switches to the unit selection menu.

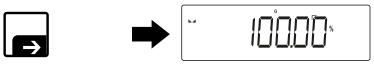


4. Place the reference weight, which corresponds to 100 %, on the scale.



5. Select "%" by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The weight value of the reference weight will be displayed flashing.



6. Press **[→]**.

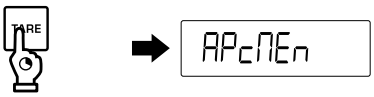
➡ The scale switches to operating mode and displays 100 %.

➡ When weighing additional loads, their weight is displayed as a percentage of the reference weight.

9.5 Weighing with a multiplication factor

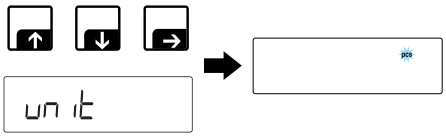
This function allows the weight value to be multiplied by any factor. This means, for example, that a known error factor can be taken into account immediately when determining the weight.

To use this function, the "Weighing" application must be active.



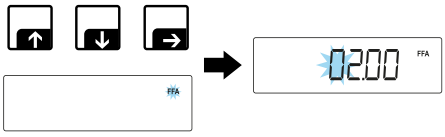
1. Press and hold **[TARE]**.

➡ The application menu opens.



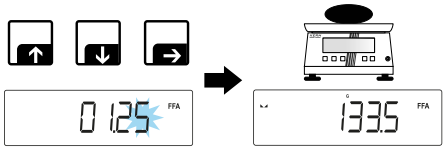
2. Select <un it> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The display switches to the unit selection menu.



3. Select "FFA" by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The display switches to numeric input.



4. Enter the factor (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).

➡ The scale switches to operating mode and displays the weight multiplied by the factor.

10 Counting application

The Counting application allows you to count several parts placed on the weighing plate.

10.1 Overview of the "Counting" application menu

Level 1	Level 2	Level 3	Description	Further information
<rEF>			Set the reference quantity	➦ *Chapter 10.2 'Setting the reference quantity' on page 77*
<PtArE>			Save known tare weight (pre-tare)	➦ *Chapter 8.4.2 'Saving a known tare weight (pre-tare)' on page 68*
<chEcK>	<tYPE>	<Abs>	Check quantity (limit values)	➦ *Chapter 10.5 'Quantity checking (limit values)' on page 82*
		<rEL>	Weigh the target number of items (deviations)	➦ *Chapter 10.4 'Weighing the target number of items' on page 80*
	———————————————————			
	With setting <tYPE> = <Abs>			
	<L iMuPP>		Upper limit	
	<L iMLoW>		Lower limit	
	With setting <tYPE> = <rEL>			
	<UALuE>		Target number of items	

Level 1	Level 2	Level 3	Description	Further information
	<ErruPP>		Upper tolerance	
	<ErrLoW>		Lower tolerance	
	———————————————————			
	<nob iG>		Define a range to be excluded from the tolerance assessment	
	<bEEPEr>	<ch-oK> (value within the tolerances / limits)	Sound when tolerance is exceeded ■ <oFF>* : no sound ■ <bLoW> : slow beeps ■ <btd>: normal beeps ■ <FAbt> : rapid beeps ■ <cont> : continuous beep	
		<ch-Lo> (below the lower tolerance / below the lower limit)		
		<ch-h i> (upper tolerance / upper limit exceeded)		
	<rEbEt>		Reset values	
<un it>			Set weighing units	➡ *Chapter 6.14 'Setting the availability of display units' on page 48*

Level 1	Level 2	Level 3	Description	Further information
<ΠodE>			Select application	*➦ Chapter 8.5 'Selecting an application' on page 69*

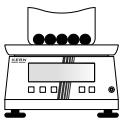
10.2 Setting the reference quantity

Before the scale can determine the number of items, it needs to calculate the average weight per item.

- *The higher the reference quantity, the greater the counting accuracy.*
- *For small items or items that vary significantly one from another, the reference value must be set particularly high.*
- *The minimum part weight for piece counting is specified in the technical data.*

Option 1: Select a predefined reference quantity

1. If necessary, place the weighing container on the scale and perform taring.

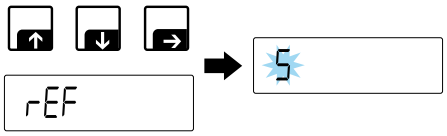


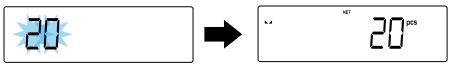
2. Place the required number of reference samples on the table.

➡ APcΠEn

3. Press and hold **[TARE]**.

   ➡ The application menu opens.





4. Select <rEF> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The most recent setting is displayed flashing

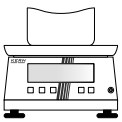
5. Select the required reference quantity (**[↑]** / **[↓]**) and confirm (**[→]**).

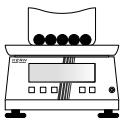
<5>	Reference quantity: 5
< 10>	Reference quantity: 10
<20>	Reference quantity: 20
<50>	Reference quantity: 50
<FrEE>	Set custom reference quantity ➡ *'Option 2: Set a custom reference quantity' on page 78*
< inPut>	Enter the average unit weight ➡ *'Option 3: Enter the average piece weight' on page 79*

➡ The scale switches to operating mode and displays the number of items.

➡ The scale is now ready for piece counting.

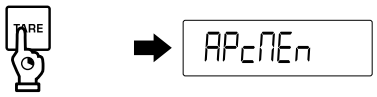
Option 2: Set a custom reference quantity





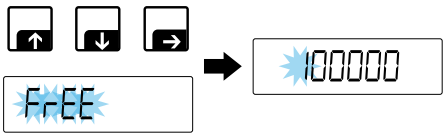
1. If necessary, place the weighing container on the scale and perform taring.

2. Place the required number of reference samples on the table.



3. Press and hold **[TARE]**.

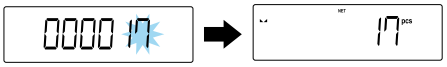
➡ The application menu opens.



4. Select <rEF> → <FrEE> by pressing **[↑]** / **[↓]** and confirm (**[➔]**).

➡ The display switches to numeric input.

➡ The most recent setting is displayed flashing

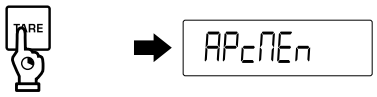


5. Enter the required reference quantity (select a number: **[↑]** / **[↓]**, next number: **[➔]**) and confirm (**[➔]**).

➡ The scale returns to operating mode and displays the number of items.

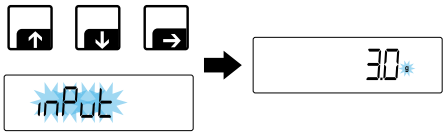
➡ The scale is now ready for piece counting.

Option 3: Enter the average piece weight



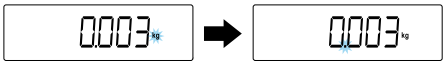
1. Press and hold **[TARE]**.

➡ The application menu opens.



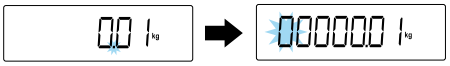
2. Select <rEF> → < inPut> by pressing **[↑]** / **[↓]** and confirm (**[➔]**).

➡ The display switches to the weighing unit settings.



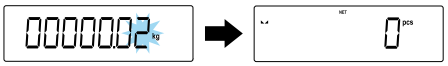
3. Select the weighing unit (**[↑]** / **[↓]**) and confirm (**[➔]**).

➡ The display switches to the decimal place settings.



4. Select the decimal place (**[↑]** / **[↓]**) and confirm (**[➔]**).

➡ The display switches to numeric input.

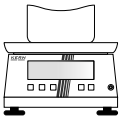


5. Enter the piece weight (select a number: **[↑]** / **[↓]**, next number: **[➔]**) and confirm (**[➔]**).

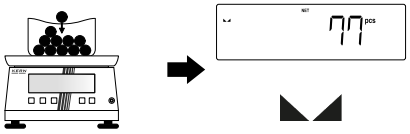
➡ The scale returns to operating mode and displays the number of items.

➡ The scale is ready for piece counting.

10.3 Simple piece counting



1. Set the reference quantity. ➦ *Chapter 10.2 'Setting the reference quantity' on page 77*
2. If necessary, place the weighing container on the scale and perform taring.

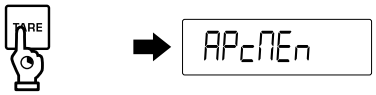


3. Weigh the pieces.
   - ➡ The quantity and the "Stability" indicator (◣◢) are displayed
   - ➡ The number of items can be read.

> *Pressing* **[CHANGE]** *toggles the display between the current quantity and the total weight (default setting).*

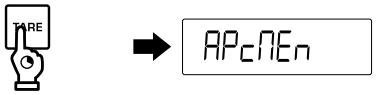
10.4 Weighing the target number of items

Select application mode



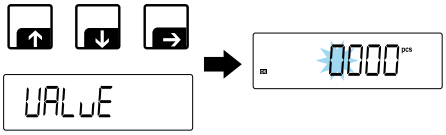
1. Press and hold **[TARE]**.
   - ➡ The application menu opens.
2. Select <chEcH> → <tYPE> → <rEL> by pressing **[↑]** / **[↓]** and confirm (**[➔]**).
   - ➡ Application mode is active.

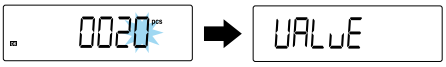
Set target quantity and tolerances



1. Set the reference quantity. ➦ *Chapter 10.2 'Setting the reference quantity' on page 77*
2. Press and hold **[TARE]**.
   - ➡ The application menu opens.

Enter target quantity





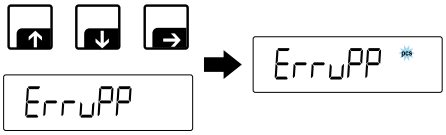
3. Select <CHECK> → <VALUE> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

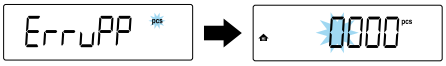
➡ The display switches to numeric input.

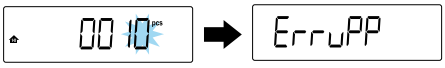
4. Enter the target quantity (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).

➡ The display switches to <VALUE>.

Enter upper tolerance







5. Select <ErrUP> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The display switches to the unit selection menu.

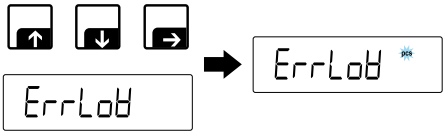
6. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[→]**).

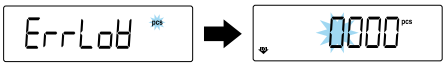
➡ The display switches to numeric input.

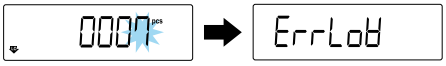
7. Enter the upper tolerance (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).

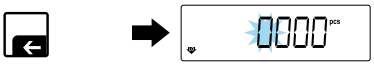
➡ The display switches to <ErrUP>.

Enter lower tolerance









8. Select <ErrLOW> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The display switches to the unit selection menu.

9. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[→]**).

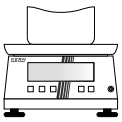
➡ The display switches to numeric input.

10. Enter the lower tolerance (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).

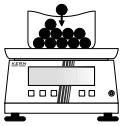
➡ The display switches to <ErrLOW>.

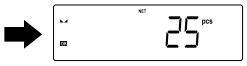
11. Press **[←]** repeatedly to exit the menu.

Weigh target number of items



1. If necessary, place the weighing container on the scale and perform taring.





2. Weigh the pieces.
   - ➡ Quantity, "Stability" indicator (◣◢) and tolerance marks are displayed.
   - ➡ The result can be read.

Tolerance mark	Description
HI	Target quantity exceeded
OK	Number of items within the tolerances
LO	Target quantity not reached

- *Pressing* **[CHANGE]** *toggles the display between the current quantity and the total weight (default setting).*
- *In addition to the tolerance marks, an audible signal can also be set to check the limits. Further information on this can be found in the application menu.*
- *To delete the values, proceed as follows:*

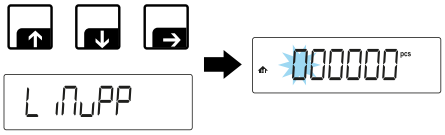
  Open the application menu and go to <chEcH> → <rESEt>.

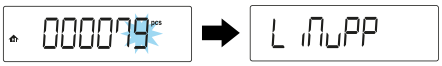
10.5 Quantity checking (limit values)

➡ APcMEn

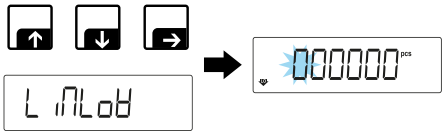
1. Press and hold **[TARE]**.
   - ➡ The application menu opens.
2. Select <chEcH> → <tYPE> → <Abs> by pressing **[↑]** / **[↓]** and confirm (**[→]**).
   - ➡ Application mode is active.

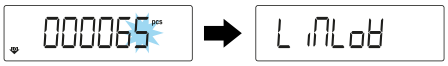
Enter the upper limit





Enter the lower limit





Check the number of items

3. Set the reference quantity. ➦ *Chapter 10.2 'Setting the reference quantity' on page 77*

4. Select <chEcH> → <LiMUPP> by pressing **[↑]** / **[↓]** and confirm (**[➔]**).

   ➡ The display switches to numeric input.

5. Enter the upper limit (select a number: **[↑]** / **[↓]**, next number: **[➔]**) and confirm (**[➔]**).

   ➡ The display switches to <LiMUPP>.

6. Select <LiMLOW> by pressing **[↑]** / **[↓]** and confirm (**[➔]**).

   ➡ The display switches to numeric input.

7. Enter the lower limit (select a number: **[↑]** / **[↓]**, next number: **[➔]**) and confirm (**[➔]**).

   ➡ The display switches to <LiMLOW>.

8. Press **[←]** repeatedly to exit the menu.

1. If necessary, place the weighing container on the scale and perform taring.

2. Weigh the pieces.

   ➡ Quantity, "Stability" indicator (◣◢) and tolerance marks are displayed.

   ➡ The result can be read.

Tolerance mark	Description
HI	Upper limit exceeded
OK	Weight within the limits
LO	Below the lower limit

- *In addition to the tolerance marks, an audible signal can also be set to check the limits. Further information on this can be found in the application menu.*
- *To delete the values, proceed as follows:*

  Open the application menu and go to <chEcH>→<rESEt>.

11 Tolerance weighing application

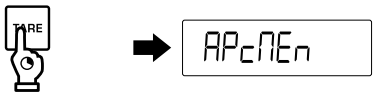
The tolerance weighing application allows you to quickly check whether a weight value falls within certain limits.

11.1 Overview of the "Tolerance weighing" application menu

Level 1	Level 2	Level 3	Description	Further information
<chEcH>	<tYPE>	<Abs>	Check weight (upper and lower limits)	➡ *Chapter 11.3 'Weight checking (limit values)' on page 88*
		<rEL>	Weigh target weight (deviations)	➡ *Chapter 11.2 'Weighing the target weight' on page 86*
	_____			
	With setting <tYPE> = <Abs>			
	<L iMuPP>		Upper limit	
	<L iMLoW>		Lower limit	
	With setting <tYPE> = <rEL>			
	<UALuE>		Target weight	
	<ErruPP>		Upper tolerance	
	<ErrLoW>		Lower tolerance	
	_____			
	<nos iG>		Define a range to be excluded from the tolerance assessment	

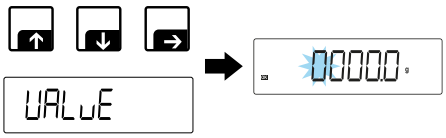
Level 1	Level 2	Level 3	Description	Further information
	<bEEPEr>	<ch-oh> (value within the tolerances / limits)	Sound when tolerance is exceeded ■ <oFF>* : no sound ■ <SLoW> : slow beeps ■ <Std>: normal beeps ■ <FASt>: rapid beeps ■ <cont>: continuous beep	
		<ch-Lo> (below the lower tolerance / below the lower limit)		
		<ch-h i> (upper tolerance / upper limit exceeded)		
	<rESEt>		Reset values	
<PtArE>			Save known tare weight (pre-tare)	➦ *Chapter 8.4.2 'Saving a known tare weight (pre-tare)' on page 68*
<un it>			Set weighing units	➦ *Chapter 6.14 'Setting the availability of display units' on page 48*
<ModE>			Select application	➦ *Chapter 8.5 'Selecting an application' on page 69*

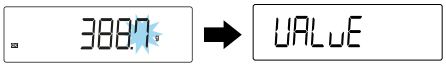
11.2 Weighing the target weight



1. Press and hold **[TARE]**.
   ➡ The application menu opens.
2. Select <chEcH> → <tYPE> → <rEL> by pressing **[↑]** / **[↓]** and confirm (**[➔]**).
   ➡ Application mode is active.

Enter target weight





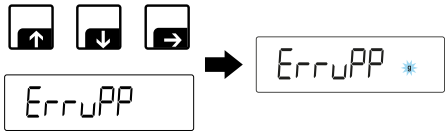
3. Select <CHECK> → <VALUE> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

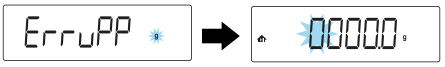
➡ The display switches to numeric input.

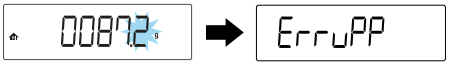
4. Enter your target weight (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).

➡ The display switches to <VALUE>.

Enter upper tolerance







5. Select <ErrUPP> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The display switches to the unit selection menu.

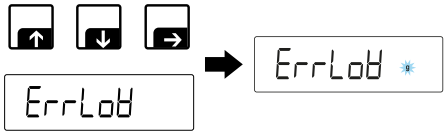
6. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[→]**).

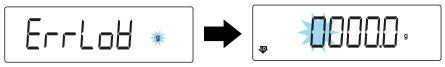
➡ The display switches to numeric input.

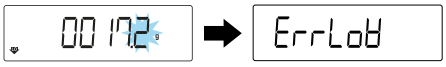
7. Enter the upper tolerance (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).

➡ The display switches to <ErrUPP>.

Enter lower tolerance







8. Select <ErrLOW> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The display switches to the unit selection menu.

9. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[→]**).

➡ The display switches to numeric input.

10. Enter the lower tolerance (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).

➡ The display switches to <ErrLOW>.

11. Press **[←]** repeatedly to exit the menu.

Weigh target weight

1. If necessary, place the weighing container on the scale and perform taring.

2. Weigh the material to be weighed.

➡ Weight, "Stability" indicator (◣◢) and tolerance marks are displayed.

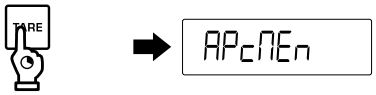
➡ The result can be read.

Tolerance mark	Description
HI	Upper tolerance limit exceeded
OK	Weight within tolerance limits
LO	Below the lower tolerance limit

- *In addition to the tolerance marks, an audible signal can also be set to check the limits. Further information on this can be found in the application menu.*
- *To delete the values, proceed as follows:*

  Open the application menu and go to <chEcH>→<rESEt>.

11.3 Weight checking (limit values)



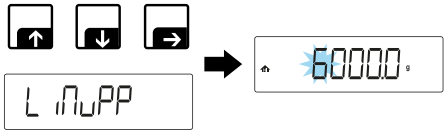
1. Press and hold **[TARE]**.

➡ The application menu opens.

2. Select <chEcH>→<tYPE>→<Abs> by pressing **[↑]** / **[↓]** and confirm (**[➔]**).

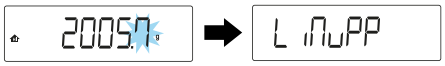
➡ Application mode is active.

Enter the upper limit



3. Select <chEcH>→<L MuPP> by pressing **[↑]** / **[↓]** and confirm (**[➔]**).

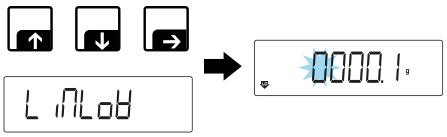
➡ The display switches to numeric input.

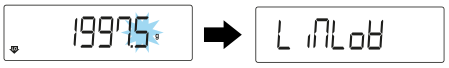


4. Enter the upper limit (select a number: **[↑]** / **[↓]**, next number: **[➔]**) and confirm (**[➔]**).

➡ The display switches to <L MuPP>.

Enter the lower limit





5. Select <LIMLOW> by pressing **[↑]** / **[↓]** and confirm (**[→]**).

➡ The display switches to numeric input.

6. Enter the lower limit (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).

➡ The display switches to <LIMLOW>.

7. Press **[←]** repeatedly to exit the menu.

Check weight

1. If necessary, place the weighing container on the scale and perform taring.

2. Weigh the material.

➡ Weight, "Stability" indicator (◣◢) and tolerance marks are displayed.

➡ The result can be read.

Tolerance mark	Description
HI	Upper limit exceeded
OK	Weight within the limits
LO	Below the lower limit

- *In addition to the tolerance marks, an audible signal can also be set to check the limits. Further information on this can be found in the application menu.*
- *To delete the values, proceed as follows:*
  Open the application menu and go to <CHECH>→<RESET>.

12 Other features

12.1 Applying the totalizing function

The totalizing function allows you to add together the weight values from individual weighings.

> *To use the totalizing function, your scale must be connected to a printer or a computer.*

Enable the function

1. Open the setup menu.
2. Select <Pr int> → <buN> → <on> by pressing **[↑]** / **[↓]** and confirm (**[→]**).
3. Press **[←]** repeatedly to exit the menu.

Apply the totalizing function

1. If necessary, place the weighing container on the scale and perform taring.
2. Place the first load to be weighed on the weighing plate.
   - ➡ The "Stability" indicator (◣◢) appears.
3. Press **[PRINT]**.
   - ➡ The value is stored in the total memory and the display switches to <buN 1>, followed by the current weight value.
   - ➡ The "Total" indicator (∑) appears.
   - ➡ The result is sent to a printer or PC.
4. Remove the weighed material.
5. Add any further loads to be weighed, as in steps 2 to 4.
   - ➡ The number of weighings is displayed via <buN 1>, <buN2>, <buN3> and so on.

Display total weight and clear the total memory

- Press and hold **[PRINT]**.
  - ➡ The number of weighings and the total weight are displayed.
  - ➡ The total memory is cleared and the "Total" indicator (∑) disappears.
  - ➡ The result is sent to a printer or PC.

13 Care, maintenance and servicing

13.1 Cleaning

13.1.1 Safety during cleaning

DANGER

Electric shock due to live parts

Contact with live parts can lead to electric shock and burns.

- Installation, cleaning, maintenance and servicing work may only be carried out by qualified personnel.
- Disconnect live parts from the power supply or unplug the power plug from the mains.
- Only carry out installation, cleaning, servicing and maintenance work on devices that are switched off and disconnected from the power supply, unless otherwise specified in the relevant instructions.
- Follow the instructions in this document.

NOTICE

Material damage due to incorrect cleaning

Unsuitable cleaning agents can cause damage to the device.

- Do not use any aggressive cleaning agents (e.g. solvents).
- Do not use cleaning agents containing caustic soda, acetic, hydrochloric, sulphuric or citric acid on stainless steel parts.
- Do not use metal brushes or cleaning sponges made of steel wool.
- Do not open the device. There are no parts inside that may be cleaned.

13.1.2 Recommended cleaning

1. Switch off the device.

2. Disconnect the device from the power supply.
3. Immediately remove any spilled material (e.g. loose sample residues or powder) with a brush or a handheld vacuum cleaner.
4. Clean the device with a gentle cleaning agent (e.g. soap suds) and a soft cloth.
5. Use a dry, lint-free cloth to wipe the device.

13.2 Servicing

13.2.1 Safety during servicing

DANGER

Electric shock due to live parts

Contact with live parts can lead to electric shock and burns.

- Installation, cleaning, maintenance and servicing work may only be carried out by qualified personnel.
- Disconnect live parts from the power supply or unplug the power plug from the mains.
- Only carry out installation, cleaning, servicing and maintenance work on devices that are switched off and disconnected from the power supply, unless otherwise specified in the relevant instructions.
- Follow the instructions in this document.

13.2.2 Maintenance schedule

Interval	Servicing activity	Description
Regularly	Levelling ➞ *Chapter 5.2.6 'Levelling the device' on page 30*	■ Level the scale after moving it to a new location. ■ Check the levelling regularly.
If necessary	Charge battery	Charge the rechargeable battery when it is flat.

Interval	Servicing activity	Description
Regularly / after relocating the device	Adjusting ➡ *Chapter 6.3 'Adjustment settings' on page 39*	Adjust the scale at regular intervals and after each change of location. KERN & SOHN offers test weights for this purpose.

13.3 Control of inspection, measuring and test equipment

As part of quality assurance, the metrological characteristics of the scale and any test weights must be checked at regular intervals. The responsible user must define a suitable interval for this, as well as the nature and scope of the test. Information regarding the monitoring of scales and the test weights required for this purpose is available on the KERN website (➡ *www.kern-sohn.com*). KERN's accredited Calibration Laboratory offers a fast and cost-effective service for the calibration of test weights and scales (traceability to the national measurement standard).

14 Decommissioning and storage

14.1 Taking the device out of operation

1. When operating with a rechargeable battery: To prevent deep discharge, charge the battery if the device is to be stored for a longer period of time.
2. Switch off the device.
3. Disconnect the device from the power supply:
   - Disconnect the power supply from the mains and unplug it from the device.
   - Remove the rechargeable battery from the device.
4. Remove all loose / moving parts from the device.
5. Remove all interface cables.
6. Pack the device and all accompanying parts neatly in the original packaging.

   ➡ The device can now be stored ➦ *Chapter 14.2 'Storing the device' on page 94*.

14.2 Storing the device

NOTICE

Damage caused by incorrect storage

Improper storage can damage the device.

- Take the device out of operation according to the instructions in this document ➦ *Chapter 14.1 'Taking the device out of operation' on page 94*.
- Store the device in the original packaging.
- Do not store the device outdoors.
- Observe the environmental conditions in the technical data.

15 Warranty and goods return

15.1 Warranty

The warranty claim only applies to defects that were already present at the time of purchase. Damages or defects caused by improper use, incorrect handling or normal wear and tear are excluded from the warranty.

15.2 Goods return

- *A return is not possible if you have used the device improperly and it has been damaged as a result.*
- *The original packaging, including all associated parts, must be used for returns.*
- *In cases of returns, the complete scope of delivery must be sent back.*

Procedure for returns

1. Check that all parts of the delivery are present.
2. Remove all loose / moving parts and connected cables from the device.
3. Reattach the transport safety lock.
4. Reapply any protective film that may be present.
5. Pack all parts of the delivery in the original packaging and secure them so that they cannot slip and are protected from damage.

16 Disposal

ENVIRONMENT

Damage to people and the environment due to improper disposal

Non-degradable materials (e.g. plastics or metals) can be released into the environment and cause damage if disposed of improperly.
Materials that are not recycled are a waste of resources and lead to increased environmental pollution.

Electrical devices may contain substances that are not biodegradable and are harmful to the environment and human health.

Batteries and rechargeable batteries may contain substances that are harmful to the environment and human health.

– Dispose of the device via appropriate recycling measures or recycling centres in accordance with the applicable national or regional law of the place of use.

Disposal of electronic devices

The crossed-out wheelie bin symbol indicates that waste from electronic equipment must not be disposed of with household waste. Disposal must be arranged by the operator in accordance with the applicable national or regional law of the place of use.

If this device contains confidential data, it is the responsibility of the operator to delete this data before disposal.

Remove batteries and rechargeable batteries before disposal of the device and dispose of them separately ➦ *'Disposal of batteries and rechargeable batteries' on page 96*.

Disposal of batteries and rechargeable batteries

The crossed-out wheelie bin symbol indicates that batteries and rechargeable batteries must not be disposed of with household waste. Disposal of batteries and rechargeable batteries must be arranged by the operator in accordance with the applicable national or regional law of the place of use.

We are obliged to inform end users in accordance with the EU Battery regulation and the applicable national regulations:

- End users are legally obliged to return all used (rechargeable) batteries.
- Batteries and rechargeable batteries can be returned free of charge after use to municipal collection centres or retailers. Non-used batteries/rechargeable batteries must be protected against short circuits.
- Returns to us are limited to usual household quantities of batteries and rechargeable batteries that we supply or have supplied.
- If batteries or rechargeable batteries contain cadmium (Cd), mercury (Hg) or lead (Pb), the respective symbol is shown below the waste bin symbol.

17 Troubleshooting

17.1 Error messages

Fault description	Cause	Remedy
ZL in it	Zero-setting range exceeded	Ensure that the zero-setting range is within +/- 2% of the maximum weight
underZ	Value below the zero-setting range	
instAb	Load unstable	■ Place the load gently ■ Create stable environmental conditions ■ Eliminate electromagnetic fields
Wrong	Adjusting error	Perform the adjusting again
SEtrtc	Date and time are incorrect or have not been set	Set date and time in the setup menu
NunAU	Alibi memory not available or faulty	Contact the KERN technical service department
no232	RS232 not available	Connect the RS232 KUP
noWLAn	Wi-Fi not available	Connect the Wi-Fi KUP
L - - - J	Underload	The weight must be at least equal to the minimum weight
r - - - ¬	Overload	Apply less weight
LobAt	Battery low	Change battery / Charge rechargeable battery

17.2 Troubleshooting table

Fault description	Cause	Remedy
Display does not switch on	Power supply not connected	Connect the device to the power supply
	Device is not switched on	Switch on the device
	Display defective	Contact the KERN technical service department

Fault description	Cause	Remedy
Device cannot be switched on	Power key defective	Contact the KERN technical service department
	Power supply unit defective or not connected	Check and plug in the power supply unit
	Mains power outage	Wait
	Rechargeable battery empty	Charge battery
	Rechargeable battery not connected	Connect rechargeable battery
Display does not respond to load changes	Display defective	Contact the KERN technical service department
	Load cell defective	Contact the KERN technical service department
	Transport safety lock not removed	Remove the transport safety lock ➦ *'Remove the transport safety lock' on page 28*
Displayed weight is constantly changing	Load is moving	Place the load gently
	Unstable environmental conditions (e.g. draught / air movement, vibrations of the table or floor)	Stabilise the environmental conditions or move the device to another location
	Weighing plate is in contact with foreign objects	Remove foreign objects
	Electromagnetic fields / Electrostatic charge	If possible, switch off the interfering device or change the location of the scale
	Load cell defective	Contact the KERN technical service department
Result is incorrect	Scale is off zero	Unload the scale and set it to zero
	Adjustment is no longer correct	Carry out adjusting
	Scale is not level	Level the scale

Fault description	Cause	Remedy
Result is incorrect	Significant variations in ambient temperature	Stabilise the environmental conditions or move the device to another location
	Electromagnetic fields / Electrostatic charge	If possible, switch off the interfering device or change the location of the scale
	Transport safety lock not removed	Remove the transport safety lock ➦ *'Remove the transport safety lock' on page 28*

18 Product specification

18.1 Technical data

Model-specific data

Model	FCB 6K-5	FCB 12K-4	FCB 30K-4
Item no. / Type	TFCB 6K-5-A	TFCB 12K-4-A	TFCB 30K-4-A
Readout (d)	0,05 g	0,0001 kg	0,0002 g
Weighing capacity (max.)	6000 g	12000 g	30000 g
Reproducibility	0,05 g	0,0001 kg	0,0002 g
Linearity	+/-0,15 g	+/-0,0003 kg	+/-0,0006 g
Stabilization time (typical)	2 s	2 s	2 s
Smallest part weight when piece counting (laboratory conditions)	50 mg	100 mg	200 mg
Smallest part weight when piece counting (normal conditions)	500 mg	1 g	2 g
Adjustment points	2 / 4 / 6 kg or user-defined	2 / 5 / 10 / 12 kg or user-defined	10 / 20 / 30 kg or user-defined
Recommended adjustment weight (class)	6 kg (F2)	12 kg (F2)	20 kg (F1) / 10 kg (F1)
Time required to reach operating temperature	120 min	120 min	120 min
Measuring system	Strain gauges (DMS)	Strain gauges (DMS)	Strain gauges (DMS)
Transport safety lock	Yes	Yes	Yes

Model	FCB 6K-3DM	FCB 15K-3DM	FCB 30K-3DM
Item no. / Type	TFCB 6K-3DM-A	TFCB 15K-3DM-A	TFCB 30K-3DM-A
Readout (d)	1 g; 2 g	0,002 kg; 0,005 kg	0,005 kg; 0,01 kg
Weighing capacity (max.)	3000 g	6000 g	15000 g
Minimum weight (min.)	20 g	0,04 kg	0,1 kg
Taring range (subtractive)	6000 g	15 kg	30 kg
Reproducibility	1 g; 2 g	0,002 kg; 0,005 kg	0.005 kg; 0.01 kg
Linearity	+/-1 g; +/-2 g	+/-0,002 kg; +/-0,005 kg	+/-0,005 kg; +/-0,01 kg
Stabilization time (typical)	2 s	2 s	2 s
Verification scale interval (e)	1 g; 2 g	0,002 kg; 0,005 kg	0,005 kg; 0,01 kg
Verification class	III	III	III
Smallest part weight when piece counting (laboratory conditions)	200 mg	500 mg	1 g
Smallest part weight when piece counting (normal conditions)	2 g	5 g	10 g
Adjustment points	2 / 4 / 6 kg or user-defined	5 / 10 / 15 kg or user-defined	10 / 20 / 30 kg or user-defined
Recommended adjustment weight (class)	6 kg (M1)	15 kg (F2)	30 kg (M2)
Time required to reach operating temperature	10 min	10 min	10 min
Measuring system	Strain gauges (DMS)	Strain gauges (DMS)	Strain gauges (DMS)
Transport safety lock	Yes	Yes	Yes

Dimensions and weight

Model	FCB 6K-5	FCB 12K-4	FCB 30K-4
Net weight	3,8 kg	3,8 kg	4,0 kg
Dimensions (fully assembled)	325 x 270 x 105 mm		
Dimensions of the device (without removable parts)	322 x 267 x 91 mm		
Dimensions of the weighing surface	252 x 225 mm		

Model	FCB 6K-3DM	FCB 15K-3DM	FCB 30K-3DM
Net weight	3,8 kg	3,8 kg	4,0 kg
Dimensions (fully assembled)	325 x 270 x 105 mm		
Dimensions of the device (without removable parts)	322 x 267 x 91 mm		
Dimensions of the weighing surface	252 x 225 mm		

General data

Units	Non-verified models	kg, g, gn, dwt, ct, lb, oz, ffa, PCS, %
	Verified models	kg, g
Interface		KUP connection (KERN Universal Port) ■ RS232 ■ USB-D ■ Ethernet ■ Wi-Fi ■ Bluetooth
Ambient conditions	Ambient temperature	-10–+40 °C
	Relative humidity (non-condensing)	80 %

Power supply

Scale	Input	Voltage	5,9 V
		Current	1 A
Power supply unit	Input	Voltage	100–240 V AC
		Frequency	50–60 Hz
		Current	
Rechargeable battery	Charging time		8 h
	Operating time (without backlight)		48 h
	Operating time (with backlight)		24 h
	Note		Optional item (not included in the scope of delivery)

18.2 Declaration of Conformity

The current EC/EU Declaration of Conformity can be found online at ➡ *www.kern-sohn.com/shop/en/downloads*.

18.3 Notes on verification

General provisions

According to EU Directive 2014/31/EU, scales must be verified if they are used as follows (regulated sector):

- In commercial trade, where the price of goods is determined by weighing.
- In the preparation of medicines in pharmacies as well as in analyses carried out in medical and pharmaceutical laboratories.
- For official purposes.
- In the production of pre-packaged goods.
- In medical science, to determine patient's body weight for medical monitoring, examination and treatment.

If in doubt, please contact your local Weights and Measures Office.

Scales used in the legally regulated sector (→ verified scales) must comply with the maximum permissible error limits in service during the verification validity period – these are generally twice the maximum permissible error limits that are used on initial verification. Once this verification validity period expires, the scale must be subject to a subsequent verification. Should it be necessary to adjust the scale in order to comply with the maximum permissible error limits in service for the subsequent verification to be successful, this does not constitute a warranty claim.

Notes on official verification

The scale's verification status is invalid if sealing labels are missing

On scales with type approval, the sealing labels affixed indicate that the scales may only be opened and serviced by trained and authorised personnel. If the sealing labels are broken, the verification is no longer valid. National laws and regulations must be observed. In Germany, re-verification is required.

Scales designated as 'suitable for verification' in the technical data have EU type approval. If the scale is used in a sector subject to verification as described above, it must be verified and re-verified at regular intervals. The subsequent verification of a scale is carried out in accordance with the relevant legal provisions of the respective country. In Germany, for example, the period of validity of verification for scales is generally 2 years. The legal provisions of the country of use must be observed!

18.4 Accessories

The following list contains a selection of optional accessories. You can find an up-to-date list of accessories and further information on our website at ➦ www.kern-sohn.com.

- Interface adapter
  - RS232: KUP-01
  - USB-D: KUP-03
  - Ethernet: KUP-04
  - Wi-Fi: KUP-05
  - Bluetooth: KUP-06
  - Analogue: KUP-08

19 Contact details

KERN Hotlines	**Technical questions about our products? Here you will find quick help: +49 7433 9933- ...**
Service hotline	For general technical questions about your KERN product → **199**
Laboratory and analytical balances	For all technical questions relating to our high-quality precision balances, analytical balances (especially with force-compensated measuring systems, tuning fork and high application density) → **444**
Industrial scales	For all technical questions relating to our basic scales, e.g. pocket balances, school balances, bench scales, platform scales, counting scales, counting systems, floor scales, pallet truck scales, crane scales, veterinary scales → **333**
Medical scales	For all technical questions relating to our baby scales, personal floor scales, handrail scales, chair scales, wheelchair scales, hand grip dynamometers → **499**
Optical devices	For all technical questions relating to our microscopes, microscope cameras, refractometers → **777**
EasyTouch (software)	For all technical questions regarding installation and commissioning of the EasyTouch software → **322**
Calibration and verification service	For all questions relating to our calibration and verification services → **196**

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