Bench scale

Model: FKS

Type series: TFKS-A

Operating instructions

Version 1.0 – en_GB

Read the instructions before starting any work!

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Additional instructions

Read this document in full before using the device

Read this document in full, paying particular attention to the safety instructions contained therein, before working with the device. The manufacturer accepts no liability for damage resulting from failure to observe the instructions or from improper use.

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1 Introduction

1.1 Validity

This document forms part of the product. It applies to the product versions listed below.

You can identify which product version your product is by checking the type plate. The illustration below is an example. The actual type plate may differ from the illustration. <Model> indicates the model number and <Type> indicates the type part number.

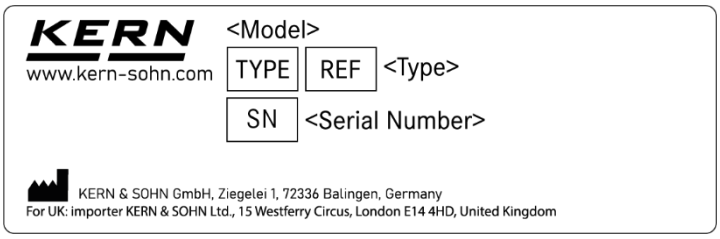


Figure1: Example of the type plate (actual type plate may differ)

Model	Item number / Type
FKS 1K-4M	TFKS 1K-4M-A
FKS 3K-3M	TFKS 3K-3M-A
FKS 6K-3M	TFKS 6K-3M-A
FKS 15K-3M	TFKS 15K-3M-A
FKS 30K-2M	TFKS 30K-2M-A
FKS 1K-5	TFKS 1K-5-A
FKS 3K-4	TFKS 3K-4-A
FKS 6K-4	TFKS 6K-4-A
FKS 15K-4	TFKS 15K-4-A
FKS 30K-3	TFKS 30K-3-A

1.2 Purpose of this document

This document provides users with instructions on the safe and efficient use of the product. All users must read and understand this document carefully before using the product.

1.3 Other versions of the document

The original version of this document was written 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.

In the download section, you will find further interesting information about our products:

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

1.4 Presentation conventions

Notations in the text

Element	Meaning
Example: **[TARE]**	Designation of buttons
Example: <SETUP>	Text displayed on the scale
*	Asterisks * indicate default settings

Instructions

Instructions are presented as step-by-step guidance.

1. Here is step 1.
2. Here is step 2.
   ⇨ Here is the result of step 2.

Other information

Additional information or tips are provided here.

2 General safety instructions

Read the document thoroughly before using the device. The manufacturer accepts no liability for damage resulting from failure to observe the instructions or from improper use. Keep the document for future reference.

2.1 Meaning of the warning notices

Warnings alert you to potential safety risks associated with specific activities. Read warnings in full and follow the instructions. Failure to do so may result in personal injury, property damage, environmental damage, malfunctions or incorrect results.

Meaning of signal words

Signal word	Meaning
DANGER	This combination of symbol and signal word indicates an immediately dangerous situation which will result in death or serious injury if not avoided.
WARNING	This combination of symbol and signal word indicates a potentially dangerous situation which may result in death or serious injury if not avoided.
CAUTION	This combination of symbol and signal word indicates a potentially dangerous situation which may result in minor or slight injury if not avoided.
NOTE	This combination of symbol and signal word indicates a potentially hazardous situation which, if not avoided, may result in damage to property or the environment.
ENVIRONMENT	This combination of symbol and signal word indicates a potentially hazardous situation which, if not avoided, may result in damage to property or the environment.

Meaning of warning signs

Warning signs	Type of hazard
	Warning of a hazardous area.
	Warning of hazards posed by batteries.
	Warning of dangerous electrical voltage.

2.2 Safe handling of packaging materials

Always keep packaging material out of the reach of children and animals to avoid the risk of suffocation.

2.3 Safe handling of electrical equipment

Safe handling of power adapters

Improper handling of power adapters or the use of damaged or unsuitable power adapters and power cables can lead to life-threatening injuries. Therefore, please observe the following instructions:

- The device must not be used if the electrical equipment is faulty (e.g. damage to the power supply unit or power cable, deformation, smoke, etc.). If you notice any damage, disconnect the device from the power supply immediately and contact your dealer or the KERN & SOHN service department.
- Only connect the device to a properly installed and undamaged power supply. The specifications on the device (sticker) and the mains voltage at the place of use must be identical.
- Ensure that no moisture (e.g. water vapour or liquids) comes into contact with the electrical equipment at the place of use to prevent short circuits.
- Use only original power adapters and connection cables. If you require replacements, please contact your dealer or the KERN & SOHN service department.
- Work on the device's electrical equipment must only be carried out by KERN & SOHN's service department.
- The power cable must be routed in such a way that it does not pose a tripping hazard and is not trapped or kinked.
- In an emergency, it must be possible to disconnect the device from the power supply without difficulty.

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, please 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 correct polarity (positive and negative terminals) and use suitable battery types. Use only types recommended by the manufacturer.
- Batteries and rechargeable batteries must not be modified.

Charging rechargeable batteries

- Chargers must not be modified.
- Use only the original charger.
- Observe the charging time specified in the technical data and avoid overcharging.
- Do not charge rechargeable batteries that are deformed or show other signs of damage.
- If heat builds up, the battery becomes deformed, or you notice smoke or a burning smell, disconnect the charger immediately and take it out of service.

Transport

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

Storage

- Charge the battery if you are not going to use it for a long time.
- Remove batteries or rechargeable batteries if the device is not to be used for a prolonged period.
- Protect batteries and rechargeable batteries from short circuits (e.g. by covering the terminals) and store them separately by type. Ideally, store them in a fireproof container.
- 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 in the technical data.

Battery fluid

- Avoid contact between leaking fluid and skin, eyes or clothing.
- Wear protective clothing/equipment when removing a faulty battery and ensure there is adequate ventilation.
- Thoroughly clean skin or clothing that has come into contact with battery fluid using soapy water, then rinse with clean water.
- In case of contact with the eyes, rinse immediately with clean water and then seek medical attention.

Disposal

- Do not dispose of batteries in household waste; instead, take them to collection points or recycling centres.
- When disposing of them, ensure that the terminals are not short-circuited.
- Follow the instructions for disposing of batteries and rechargeable batteries. ➦ Chapter 17

2.4 IT security information

This device is equipped with an interface for data transmission. Unauthorised persons may be able to gain access to the data exchanged. It is the operator's responsibility to identify 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 designed to determine the weight of the sample. This scale is a "non-automatic scale". This means that the sample must be placed manually, carefully and as centrally as possible on the weighing platform. Once a stable weight is displayed, the result can be read.

2.6 Improper use

Improper use of the scale

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

  However, following an assessment of the specific application and accuracy requirements, the scales can also be used for dosing applications.

  You can check the technical data to see whether your scale is equipped with strain gauges. ➦ Chapter 19.1
- Avoid impact loads and exceeding the scale's maximum load limit (Max.) to prevent damage.
- The scale must never be operated in potentially explosive atmospheres.
- Any modification to the scale's design may lead to incorrect weighing results and safety-related defects. Such modifications are therefore prohibited.
- The scale must only be used in accordance with the specifications described.
- The scale is not designed for weighing people. It is not suitable for medical purposes and does not comply with the requirements of the Medical Devices Act.

2.7 Operator's responsibilities

It is the operator's responsibility to comply with the specifications described in this document as well as with legal and regulatory requirements at the place of use. Any failure to observe the safety regulations and instructions described in this document shall be deemed improper use. KERN & SOHN shall not be liable for damage resulting from improper use.

2.8 Required user qualifications

- The assembly, commissioning, maintenance and servicing of the device must be carried out exclusively by qualified personnel. A qualified person is someone with appropriate vocational training or qualifications for the activities described. They possess a sound understanding of the tasks and the relevant safety standards.
- The operation, handling and maintenance of the device must only be entrusted to trained users. A trained user is a person who has been trained in the use of the device and the relevant safety regulations.

2.9 Requirements for the operating environment

In addition to the environmental specifications in the technical data, please note the following requirements for the operating environment:

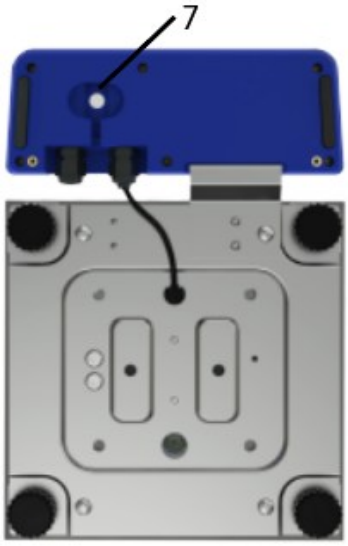
- The device must not be operated in environments where there is a risk of corrosion.
- The device must be protected from excessive humidity, vapours, mist and dust.
- The device must be protected from excessive moisture caused by condensation. Condensation may occur if the device is moved from a cold environment to a significantly warmer one. If such a change in environment cannot be avoided, allow the device to acclimatise for approx. 2 hours before use.
- The device must not be used in environments containing aggressive chemicals, gases or liquids.
- The device must not be used in potentially explosive areas or environments where explosive substances are present.
- The device must not be used in environments subject to severe shocks or vibrations.
- The device must not be exposed to extreme heat or significant temperature fluctuations (e.g. by placing the device next to a heater or in direct sunlight).
- Protect the device from direct draughts.
- Choose an operating environment with a stable power supply.
- Take the surrounding environment into account when selecting the location for use. Electromagnetic fields and electrostatic charges may distort 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, in quality control or for stocktaking).

3.2 Overview of the device

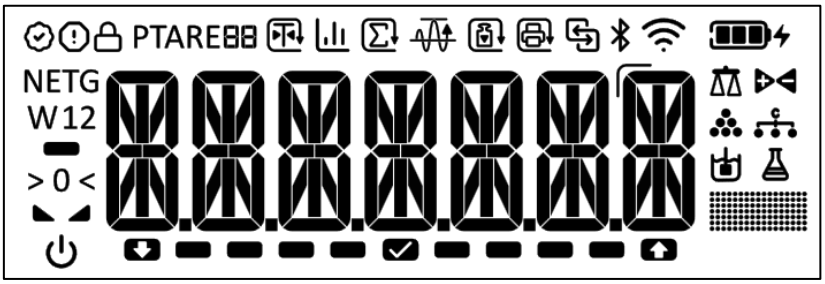


1	Weighing platform
2	Foot screws
3	Buttons
4	Display
5	Spirit level
6	Mounting bracket for display unit
7	Magnetic connection for power supply

3.3 Overview of the buttons

Button	Description in text	Short press	Long press
ON OFF	**[ON/OFF]**	• Switch on the scale	• Switch off the scale
PRINT ↑	**[PRINT]** or **[↑]**	• Send data to a connected peripheral device • Previous menu item • Increase digit	
⟲	**[CHANGE]**	• Switch between weighing units (When pressed for the first time: set weighing unit)	• Display gross weight
→0← ←	**[ZERO]** or **[←]**	• Zero • Go back one menu level / Exit menu • Previous digit	
F ↓	**[F]** or **[↓]**	**General:** • Function key ➦ Chapter 6.7 • Next menu item • Decrease digit	
		Application: Weighing • Execute hold function	**Application: Weighing** • Open PTARE settings
		Application: Counting • Set reference count	**Application: Counting** • Open settings for target counting
		Application: Tolerance weighing • Open Checkweighing settings	**Application: Tolerance weighing** • Open PTARE settings
		Application: Classify • Open Classifying settings	**Application: Classification** • Open Auto-Tare settings
TARE →	**[TARE]** or **[→]**	• Tare • Select menu item and move to the next menu level / Confirm selection • Confirm digit and move to the next digit	

3.4 Overview of the display



Display	Description
	Verified device (only lights up if the scale has been set to “verified” in the service menu)
	Menu lock active
	Tare display during auto-tare
	Hold function
	Output data
	Bluetooth
	Wi-Fi
	Battery capacity (with built-in battery)
	Mains operation (with built-in battery: battery is charging)
	Weighing
	Tolerance weighing
	Piece counting
	Classification
Σ	Totalisation
	Additional symbol for tare, totalisation and printing: Auto mode is enabled. The arrow border appears in addition to the respective function symbol when the auto mode for that function is activated. During automatic execution of the function, the arrow border is hidden for 0.5 s.

Any symbols not listed here have no function on this model of the device.

4 Unpacking, checking and transporting the device

4.1 Unpacking and checking the device

⚠ WARNING

Risk of tripping or suffocation from packaging material

Packaging material left on the floor can pose a tripping hazard.

Unsupervised packaging material can pose a suffocation hazard to children or animals.

- ⇨ Do not leave packaging material lying around unattended, especially if children or pets are in the vicinity.
- ⇨ Remove the packaging material immediately after unpacking and dispose of it properly. However, for any returns, we recommend keeping the packaging material in the original box.

- *Keep the original packaging and its components for transport, storage or any potential returns.*
- *Please contact your dealer if you find any parts missing or damaged.*
  For information on the warranty and returns, see ➦ Chapter 16

1. Check the packaging for any visible external damage that may have occurred during delivery.
2. Remove all parts included in the scope of delivery (➦ Chapter 4.2) and remove the packaging materials.
3. Check that all parts included in the scope of delivery are complete and undamaged.

   ⇨ You can now transport the device to its place of use. ➦ Chapter 4.3

4.2 Scope of delivery

- Scale
- Weighing platform
- Display unit
- Mains power supply unit with USB connection cable
- Mains plug adapter set
- Operating instructions

4.3 Transporting the device

NOTE

Damage caused by improper transport

Improper transport can cause damage to the device.

- ⇨ Remove all loads from the weighing platform before transporting the scale.
- ⇨ Remove all loose components from the device before transporting it.
- ⇨ Transport the device over long distances in its original packaging.
- ⇨ 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 location

The scale is designed to provide reliable weighing results under normal operating conditions. You will work accurately and quickly if you choose the right location for your scale.

When selecting the location, please note:

➦ Chapter 19.1

➦ Chapter 2.9

5.2 Installing the device

5.2.1 Connecting wired peripherals

Use only KERN accessories and printers. These are optimally matched to your scale.

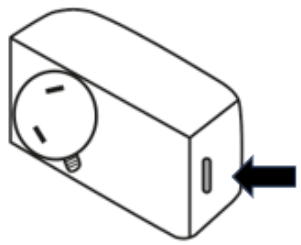
Disconnect the scale from the mains before connecting an additional device (e.g. printer, PC).

For information on configuring the interfaces, see ➦ Chapter 7.

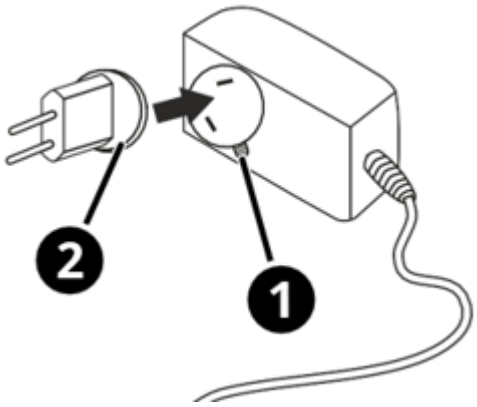
5.2.2 Mains operation

Fitting the mains plug adapter

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



1. Plug the USB plug of the power cable into the socket on the power supply unit.



2. Press release tab *1*.

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

4. Turn the inserted mains plug until the mains plug adapter clicks into place.

⇨ The power supply unit is now ready for use.

⇨ To remove the mains plug adapter, press the release tab and follow the steps in reverse order.

Connecting the power supply to the mains

⚠ WARNING

Serious injury from damaged power adapters

Damaged power adapters can lead to short circuits, fires and serious injury.

- ⇨ Before each use, check the power supply unit and power cable for visible damage. Do not use the power supply unit if there is any damage.

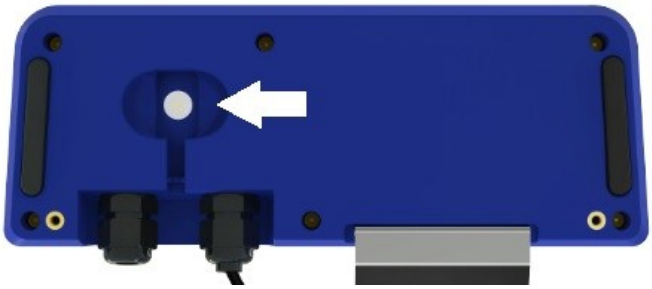
⚠ WARNING

Injuries caused by incorrect handling of power adapters

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

- ⇨ Observe the safety instructions for handling power adapters. ➦ Chapter 2.3
- ⇨ Keep moisture away from the mains connection, the power supply unit and the socket.
- ⇨ Only connect the device to a properly installed socket.
- ⇨ Ensure that the power supply unit's cable is never kinked or trapped.
- ⇨ Ensure that the power supply unit is accessible at all times.
- ⇨ Ensure that the power cable does not pose a tripping hazard.
- ⇨ Only connect the power supply unit to the mains if the specifications on the unit (sticker) and the mains voltage at the place of use are identical.

1. Turn the display to the rear.



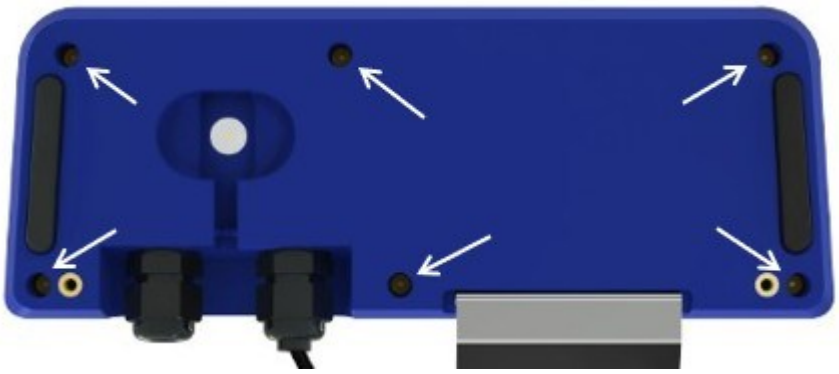
2. Plug the mains cable into the ‘ ’ mains socket on the device.

3. Plug the mains plug into the socket.
   - ➢ The device switches on and performs a self-test.
   - ➢ The device switches to standby mode.
   - ➢ The device is now ready for use. ➦ Chapter 5.4

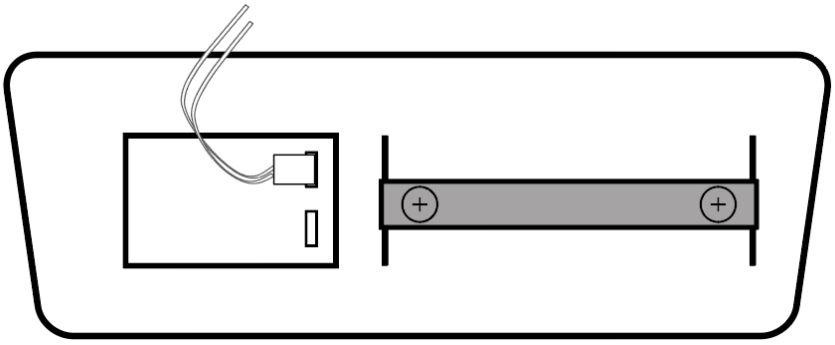
5.3 Battery operation

Optional accessories are required for battery operation. Further information can be found on our website ➦ www.kern-sohn.com

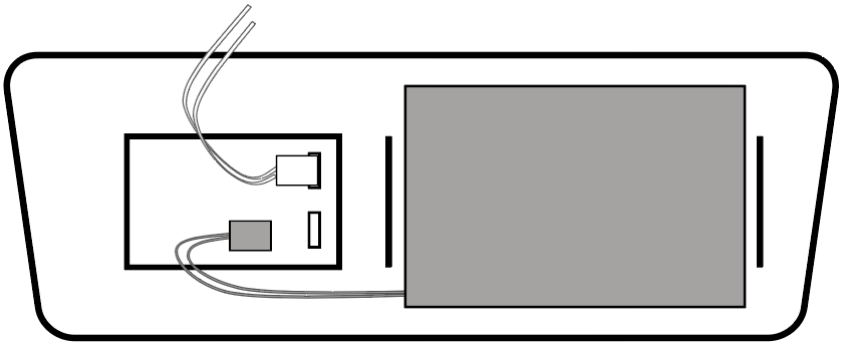
Installing the battery:



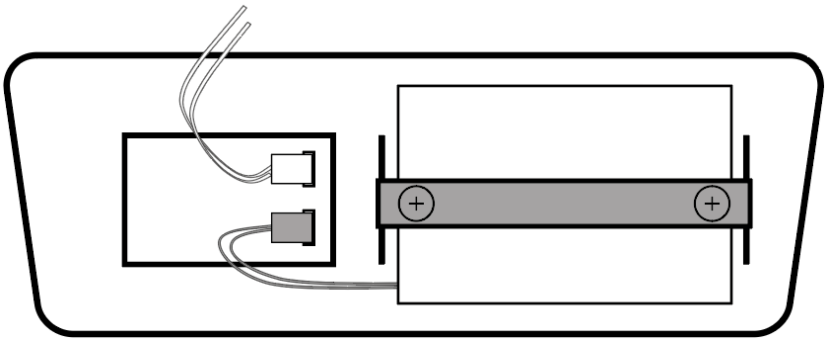
1. Unscrew the six screws on the underside of the display unit and carefully open the housing.



2. Loosen the two Phillips-head screws at the bottom of the display unit and remove the bracket.



3. Place the battery in the recess provided and screw the retaining bracket back into place over the battery.



4. Plug the battery's connector into the socket on the charging board.

5. Carefully close the housing of the display unit and screw the bottom section back on using the six Phillips-head screws.

NOTE

Please ensure that the seal is not displaced and seals properly when the housing is closed. No cables must protrude from the housing. No liability is accepted in the event of incorrect installation.

Charging the battery

⚠ WARNING

Injuries caused by improper charging of batteries

If batteries are charged incorrectly, they may catch fire or explode.

- ⇨ Chargers must not be modified.
- ⇨ Use only 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.
- ⇨ If heat builds up, the charger becomes deformed, or you notice smoke or the smell of burning, disconnect the charger immediately and take it out of service.
- ⇨ Observe the general safety instructions for batteries and rechargeable batteries. ➦ Chapter 2.3

The battery should be fully charged before first use. The charging time can be found in the technical data ➦ Chapter 19.1.

- ➢ To charge the battery, connect the mains adapter to the scale.

5.4 Putting the device into operation

Steps to take before commissioning

To obtain accurate weighing results with electronic scales, the scale must have reached its operating temperature. The scale must be connected to the power supply for this acclimatisation period (➦ Chapter 19.1).

Carrying out commissioning

Complete all necessary installation work and preparations before commissioning.

1. Switch on the device. ➦ Chapter 8.1
2. Initial adjustment at the installation site may be necessary. ➦ Chapter 6.3

6 Settings

6.1 Opening and using the setup menu

➢ In operating mode, press and hold **[TARE]** and **[ON/OFF]** simultaneously.

⇨ <SETUP>→ <CAL> is displayed.

⇨ The scale is now in the setup menu.

Navigating the menu

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

Numeric input

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

6.2 Setup menu overview

Menu level	Description	Further information
<CAL>	Adjustment settings	➦ Chapter 6.3
<CoM>	Interface parameters	➦ Chapter 7.3.1
<PRINT>	Data output and printing	➦ Chapter 7.4.1
<KEYToN>	Key tone	➦ Chapter 6.4
<ECo>	Automatic switch-off function	➦ Chapter 6.5
<AUToN>	Automatic switch-on function	➦ Chapter 6.6
<BUTToNS>	Button assignments	➦ Chapter 6.7
<BLIGHT>	Backlight	➦ Chapter 6.8
<TARERG>	Taring range	➦ Chapter 6.9
<Auto T>	Auto-Tare	➦ Chapter 6.10
<ZLIMIT>	Zero adjustment range	➦ Chapter 6.11
<ZTRACK>	Automatic zero tracking	➦ Chapter 6.12
<FILTER>	Filter settings	➦ Chapter 6.13
<DATIME>	Date and time of the real-time clock	➦ Chapter 6.14
<UNITS>	Available units	➦ Chapter 6.15
<MoDES>	Available applications	➦ Chapter 6.16
<LoCK>	User management	➦ Chapter 6.17
<RESET>	Restore factory settings (except date and time)	➦ Chapter 6.18

6.3 Adjustment settings

Gravitational acceleration varies at different locations on Earth. To ensure accurate weighing results, the scale must be adjusted to the gravitational acceleration at its installation site. The scale must have reached its operating temperature before adjusting.

Adjustment of the scale is required in the following cases:

- Before initial commissioning, if the scale has not already been adjusted to the installation site at the factory.
- After every change of location.
- After significant changes in ambient 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 be adjusted regularly.

CAUTION

Incorrect weighing results

⇨ Avoid unstable environmental conditions during adjustment (e.g. vibrations or air currents).

⇨ Ensure that the scale has reached its operating temperature.

⇨ Only carry out adjustment with the standard weighing plate in place.

⇨ Ensure that there is no load on the weighing pplate during internal adjusting.

6.3.1 Adjusting with external adjustment weight

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

1. Select <CAL> → <CALEXT> (↑ /↓) and confirm (➔).
   ⇨ The required adjustment weight is displayed.
2. Press **[➔]**.
   ⇨ <ZERO> is displayed.
3. Ensure that the weighing plate is unloaded and press **[➔]**.
   ⇨ <PUTLD> and the value of the adjustment weight are displayed.
4. Place the adjustment weight in the centre of the scale.
5. Confirm with **[➔]**.
   ⇨ <WAIT> → <REMVLD> are displayed.
6. Remove the adjustment weight.
   ⇨ The scale switches to operating mode.
   ⇨ Adjustment is complete.

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

6.3.2 Adjusting with a user-defined adjustment weight

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

1. Select <CAL> → <CALEUD> (**[↑]** / **[↓]**) and confirm (**[➔]**).
   ⇨ The numerical input dialogue box appears and the active digit flashes.
2. Enter the weight value (select a number: **[↑]** / **[↓]**, next number: **[➔]** and confirm **[➔]**).
   ⇨ <ZERO> is displayed.
3. Ensure that the weighing plate is empty and press **[➔]**.
   ⇨ <PUTLD> and the value of the adjustment weight are displayed.
4. Place the adjustment weight in the centre of the scale.
5. Confirm with **[➔]**.
   ⇨ <WAIT> → <REMVLD> are displayed.
6. Remove the adjustment weight.
   ⇨ The scale switches to operating mode.
   ⇨ Adjustment is complete.

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

6.4 Setting the key tone

<KEYToN>

Settings

- <oN>*: Key tone enabled
- <oFF>: Key tone deactivated

6.5 Setting the automatic switch-off function

<ECo>

Submenu	Description	Settings
<MoDE>	Set sleep mode	• <oFF>: Automatic switch-off function disabled • <AUToFF>: Automatic shut-down after the time set under <TIME> without load change
<TIMEMD> (only available if the <AUToFF> setting is activated under <MoDE>)	Set shutdown time	• <AUTo>: Automatic switch-off always • <oNLY 0>: Automatic switch-off only when the display shows zero
<TIME>	Set switch-off time	• <30 S> • <1 MIN> • <2 MIN> • <5 MIN> • <30 MIN> • <60 MIN>

6.6 Setting the automatic switch-on function

<AUToN>

Settings

- <oN>: Switch the device on automatically after connecting to the mains
- <oFF>*: Deactivate automatic switch-on function

6.7 Assigning key functions

Certain buttons on the scale can be assigned different functions. This allows quick access to specific functions in operating mode.

<BUTToNS>

Submenu	Description	Settings
<F-KEY>	Change function of selected key	• <SPUSH>: Change short key press • <LPUSH>: Change long press **Description of possible functions:** • <ToGGLE>: Switch displayed unit • <UNIT>: Set weighing unit • <PTARE>: Open pre-tare settings • <SHoW GT>: Display gross and tare values • <HoLD> : Execute hold function • <MoDE> : Change application • <CHECK>: When the “Counting” application is active: Set limit values for piece counting When the "Tolerance Weighing" application is active: Open the settings menu for tolerances • <REF>: Set reference piece count • <CLASS>: Open class settings • <oFF>: Button disabled **Available for application: Weighing** <ToGGLE>, <UNIT>, <PTARE>, <SHoW GT>, <HoLD>, <MoDE>, <oFF> **Available for the following application: Counting** <ToGGLE>, <UNIT>, <PTARE>, <SHoW GT>, <MoDE>, <CHECK>, <REF>, <oFF> **Available for application: Tolerance weighing** <ToGGLE>, <UNIT>, <PTARE>, <SHoW GT>, <MoDE>, <oFF> **Available for application: Classifying** <ToGGLE>, <UNIT>, <PTARE>, <SHoW GT>, <MoDE>, <CLASS>, <oFF>
<CHANGE>	Change function of selected key	

6.8 Settting the backlight

<BLIGHT>

Submenu	Description	Settings
<MoDE>	Set lighting mode	• <TIMER>: Automatically switch off the backlight after the time set under <TIME> without load change • <ALWAYS>: Backlight always on
<TIME>	Set the backlight switch-off time	• <5 S> • <10 S> • <30 S> • <1 MIN> • <2 MIN > • <5 MIN > • <30 MIN>
<BRIGHT>	Adjust brightness	Numerical input, adjustable from <1> to <100> %

6.9 Setting the taring range

<TARERG>

Function disabled for verified devices

This function is only available for non-verified devices. You can find out which models are verified and which are not in the technical data. ➞ Chapter 19.1

This setting allows the maximum taring range to be defined between 10% and 100% (default setting = 99%). To do this, enter the tare range numerically.

6.10 Setting Auto-Tare

Submenu	Description	Settings
<AUTo T>	Automatic taring	• <STATUS>: <oFF> or <oN> • <TIME>: adjustable from 1 to 20 sec.

When Auto-Tare is switched on, the scale automatically detects the weight placed on it and tares it after a time that can be set in the menu. The time (e.g. 1 s) is only counted down once the weight has stabilised.

6.11 Setting the zero range (Zero Limit)

<ZLIMIT>

> ***Function disabled for verified devices***
>
> *This function is only available for non-verified devices. You can find out which models are verified and which are not in the technical data. ➦ Chapter 19.1*

This setting allows the maximum zero range to be defined between 1 % and 100 % (default setting = 2 %). To set this, enter the zero range numerically.

6.12 Setting automatic zero tracking

<ZTRACK>

> ***Function disabled for verified devices***
>
> *This function is only available for non-verified devices. You can find out which models are verified and which are not in the technical data. ➦ Chapter 19.1*

Settings

- <oN>*: Automatic zero tracking (<= 3d) enabled
- <oFF>: Automatic zero tracking disabled

> *If small quantities of material are removed or added, stability compensation may produce incorrect results (e.g. with slowly flowing liquids or evaporation). This function should therefore be deactivated for dosing with small weight fluctuations.*

6.13 Filter settings

<FILTER>

> ***Function disabled for verified devices***
>
> *This function is only available for non-verified devices. You can find out which models are verified and which are not in the technical data. ➦ Chapter 19.1*

This setting allows you to define the stabilisation behaviour of the scale between 0 and 100 (0 = very fast for calm environments, 100 = very slow for turbulent environments). To do this, enter the filter value numerically.

6.14 Setting the date and time

<DATIME>

Submenu	Description	Settings
<SET>	Set date and time	**1.** The date and time are displayed in sequence. Once the display stops at the time, this must be confirmed. ⇨ The numeric input screen appears. **2.** Enter the data: • <YY>: Year • <MM>: Month • <DD>: Day • <HH>: Hour • <MM>: Minute • <SS>: Second ⇨ The scale switches to operating mode.
<DAFoRM>	Set the date display format	• <YMD>: Year – Month – Day • <MDY>*: Month – Day – Year • <DMY>: Day – Month – Year
<TIFoRM>	Set the time display format	• <24H>* • <12H>

6.15 Setting the available display units

These settings determine which units are available in the application menu. For example, units that are not relevant in the application field can be disabled.

<UNITS>

Submenu	Description	Settings
Available units, see Technical Data	Unit selection	• <oN>: Make unit available • <oFF>: Lock unit

6.16 Setting the available applications

These settings allow you to determine the availability of applications in the application menu. For example, you can lock applications that are not relevant in the application field.

Settings for an application can only be made if it is not active in operating mode.

<MoDES>

Submenu	Description	Settings
Available applications, see Technical Data	Selecting the application	• <oN>: Make application available • <oFF>: Lock application

6.17 User management

The setup menu can be protected against access by unauthorised users by means of a password lock.

Once the lock is active, the message <LoGIN> appears when an attempt is made to open the setup menu. The user must then first enter the password before gaining access to the menu. If the entry is incorrect, <WRoNG> appears and the password must be re-entered.

If you have forgotten the password, please contact KERN Service.

<LoCK>

Submenu	Description	Settings
<SETLoCK>	Enable / disable setup menu lock	• <oN>: Enable lock After selecting <oN>, you will be prompted to enter a 6-digit password. • <oFF>*: Deactivate lock
<SRVLoCK>	Enable / disable service menu lock	• <oN>: Activate lock After selecting <oN>, you will be prompted to enter a 6-digit numeric password. • <oFF>*: Deactivate lock

6.18 Restore factory settings

<RESET>

After selecting <RESET>, the message <SURE> appears on the display. Once this message is confirmed, the scale is reset and displays <RESET> again. However, the date and time are not 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

EasyTouch sends your weighing data directly to a PC, laptop or tablet, where it can be processed immediately. EasyTouch also allows you to expand your scale with additional useful functions and tailor it perfectly to your specific application.

Further information about KERN software can be found on our website ➦ *www.kern-sohn.com*.

7.2 Description of the interfaces

KUM (KERN Universal Module)

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

7.3 Configuring interfaces

7.3.1 Configuring interface parameters

<CoM>

The configuration options are only displayed once the interfaces have been fully initialised. <BUSY> is displayed during initialisation. This may take a short time.

Submenu	Submenu	Description	Settings
<RS232> or <USB-D>	<BAUD>	Baud rate	• <600> • <1200> • <2400> • <4800> • <9600>* • <14400> • <19200> • <38400> • <57600> • <115200> • <230400>
	<DATA>	Set the number of data bits	• <7DBITS> • <8DBITS>*

	<PARITY>	Set parity	• <NoNE>*: None • <oDD>: Odd • <EVEN>: Even
	<SToP>	Set number of stop bits	• <1SBIT>* • <2SBITS>
	<HANDSK>	Handshake	• <NoNE>
	<PRoToC>	Communication protocol	• <KCP>
	<RESET>	Reset interface settings to de-fault	

The following interfaces are only displayed once they have been installed and initialised. <BUSY> is displayed during initialisation. This may take a short time.

Submenu	Submenu	Description	Settings
<WLAN>		Select Wi-Fi in-terface	• <oN>: enabled • <oFF>: disabled
<ANA-oP>		Select analogue interface	• <oFF>: disabled • <4-20MA> enabled • <0-10V> enabled
<LAN>	<IP ADR>	Display IP ad-dress	Press [➔] to move to the next digit block.
	<GTWAY>	Show gateway address	Press [➔] to move to the next block of numbers.
	<SUBNM>	Show subnet mask	Press [➔] to move to the next block of numbers.
	<RESET>	Reset to DHCP	**No additional confirmation prompt for the reset command**

7.4 Set data output

7.4.1 Overview of output settings

<PRINT>

Submenu	Submenu	Description	Settings	
<INTFCE>		Selection of the interface for data output	• <USB-D>* • <RS232>, <LAN>, <BLE> or <WLAN> (only the currently connected interface is displayed)	
<FUNC>	<SUM>	Output total		
	<NETToT>	Output net total (not yet implemented)		
	<oFF>*	Output disabled		
<TRIG>	<MANUAL>	Data output after pressing **[PRINT]**	• <oN>*: enabled • <oFF>: disabled	
	<AUToPR>	Automatic data output when the value is stable and positive	<oN>: enabled	<ZRANGE>: Factor for d. This factor, when multiplied by d, determines the range within which values are not printed.
			<oFF>*: disabled	
	<CoNT>	Continuous data output	<oN>: enabled	<INTERV>: Output interval in ms
				<PZERo>: Output when the scale is unloaded
				<PSTAB>: Transmit stable values only (cannot be set on verified devices. Default is <oN>.)
			<oFF>*: disabled	

Submenu	Submenu	Submenu	Description	Settings
<LAYOUT>	<WEIGHT>	<SGLPRT>	Output parameter: Displayed value	• <oN>: Displayed weight value is output • <oFF>*: Output disabled
		<GNTPRT>	Output parameters: Gross, Net, Tare (freely combinable)	<GRoSS>: Output gross weight • <oN>*: enabled • <oFF>: disabled
				<NET>: Print net weight • <oN>*: enabled • <oFF>: disabled
				<TARE>: Display tare weight • <oN>*: enabled • <oFF>: disabled
	<STDLYT>	<USER>	Configure data output layout	Further information is available at ➦ Chapter 7.4.3
		<DTW>		
		<GLP>		
		<MIN>*		
	<ACTLYT>	<HEADER>	Configure current layout: Header output	• <oN>: enabled • <oFF>: disabled
		<MODEL>	Scale model name output	• <oN>: enabled • <oFF>: disabled
		<SERIAL>	Scale serial number output	• <oN>: enabled • <oFF>: disabled
		<BALID>	Scale ID output	• <oN>: enabled • <oFF>: disabled
		<ALIID>	Alibi ID output	• <oN>: enabled • <oFF>: disabled

		<DIVIDER>	Configure paragraph separator	• <LINE>: insert separator line • <BLANK>: insert blank line • <NoNE>: no paragraph
		<DATE>	Output date	• <oN>: enabled • <oFF>: disabled
		<TIME>	Display time	• <oN>: enabled • <oFF>: disabled
		<DIVIDER>	Configure paragraph separator	• <LINE>: insert separator line • <BLANK>: insert blank line • <NoNE>: no paragraph
		<LIMIT>	Output limit values for tolerance weighing or classification	• <oN>: enabled • <oFF>: disabled
		<WEIGHT>	Output weight value	• <oN>: enabled • <oFF>: disabled
		<CHECK>	Tolerance weighing: output HI / LO / OK Classifying: Output weight class	• <oN>: enabled • <oFF>: disabled
		<DIVIDER>	Configure paragraph separator	• <LINE>: insert separator line • <BLANK>: insert blank line • <NoNE>: no paragraph
		<SIGN>	Insert signature field	• <oN>: enabled • <oFF>: disabled
		<DIVIDER>	Configure paragraph separator	• <LINE>: insert separator line • <BLANK>: insert blank line • <NoNE>: no paragraph
		<END LF>	Line feeds at the end of the printout	• <0>* to <99> blank lines can be set
	<RESET>		Reset layout to factory settings	• <No>: do not reset • <YES>: reset

7.4.2 Set output parameters

- Once an output mode has been activated under <TRIG>, the other modes are automatically deactivated. It is not possible to use multiple output modes at the same time.
- Under <STDLYT>, you can set a default format.
- Under <ACTLYT>, you can configure custom settings.
  ➦ Chapter 7.4.1

Manual data output <MANUAL>

When manual data output is set, printing only takes place after pressing **[PRINT]**.

1. Open the setup menu
2. Select <PRINT> → <PRMoDE> → <TRIG> → <MANUAL> → <oN> (**[↑]** / **[↓]**) and confirm (**[➔]**).
3. Press **[🡐]** repeatedly to exit the menu.
4. If necessary, place a weighing container on the platform and tare.
5. Place the item to be weighed on the platform.
6. Press **[PRINT]**.

⇨ The result is displayed.

Automatic data output <AUToPR>

When automatic data output is set, printing takes place as soon as the weight value is stable and positive.

In the settings for <ZRANGE>, a factor for d can be defined to determine the range in which no data is output.

Example

<ZRANGE> = 5; d = 0.1 g
Result: values <= 0.5 g are not printed

1. Open the setup menu
2. Select <PRINT> → <TRIG> → <AUToPR> (**[↑]** / **[↓]**) and confirm (**[➔]**).

⇨ <ZRANGE> is displayed.

3. Confirm with **[➔]**.

⇨ <oFF> is displayed. (with oFF, no zero crossing is required)

4. Select the desired factor (**[🡅]** / **[🡇]**) and confirm (**[🡆]**).

<oFF>*	without factor
<1>	1 x d
<2>	2 x d
<3>	3 x d
<4>	4 x d
<5>	5 x d

⇨ <ZRANGE> is displayed.

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

6. If necessary, place a weighing container on the platform and tare.

7. Place the item to be weighed on the platform.

⇨ As soon as the stability indicator appears, the result is displayed.

A new reading is only possible after the zero display and stabilisation (unload the scale → wait for the zero display and stability indicator).

Continuous data output <CoNT>

1. Open the setup menu

2. Select <PRINT> → <TRIG> → <CoNT> (**[🡅]** / **[🡇]**) and confirm (**[🡆]**).

⇨ <INTERV> is displayed.

3. Confirm with **[🡆]**.

⇨ The display switches to numeric input.

⇨ The last setting is displayed and flashes.

4. Enter the interval in ms (select a number: **[🡅]** / **[🡇]**, next number: **[🡆]**) and confirm (**[🡆]**).

⇨ The display changes to <INTERV>.

5. Select <PZERo> (**[🡅]** / **[🡇]**) and confirm (**[🡆]**).

<oN>	Output 0 (no load) continuously
<oFF>	No output at 0 (no load)

6. Select the desired setting (**[🡅]** / **[🡇]**) and confirm (**[🡆]**).

⇨ Display changes to <PZERo>.

7. Select <PSTAB> (**[🡅]** / **[🡇]**) and confirm (**[🡆]**).

<oN>	Print only when stable
<oFF>	Print regardless of stability

8. Select the desired setting (**[🡅]** / **[🡇]**) and confirm (**[🡆]**).

9. Press **[🡄]** repeatedly to exit the menu.

10. If necessary, place a weighing container on the platform and tare.

11. Place the item to be weighed on the platform.

⇨ Weighing values are output at the defined interval.

7.4.3 Set printout

<PRINT>→ <LAYOUT>→ <STDLYT>

Submenu	Submenu	Description	Settings
<STDLYT>	<MIN>*	Use minimal layout	• <oFF>: disabled • <oN>*: output enabled (as soon as settings are changed in <ACTLYT>, the <USER> layout is activated)
	<DTW>	Display date, time and weight	• <oFF>: display disabled • <oN>: output enabled (as soon as settings are changed in <ACTLYT>, the <USER> layout is activated)
	<GLP>	Enable / disable GLP-compliant output	• <oFF>: disable GLP-compliant printout • <oN>: enable GLP-compliant printout (as soon as settings are changed in <ACTLYT>, the <USER> layout is activated)
	<USER>	Custom layout settings Settings can be changed in the <ACTLYT> menu.	

7.4.4 Print layouts (examples)

The printout depends on the following settings:

- Settings in <SUM>, <WEIGHT> and <STDLYT>
- Selected display unit

The wide range of setting options results in a multitude of possible printouts. The following sections show some examples of settings and printouts.

Print layout: Classify application

<SUM> → <oFF>

MIN		DTW	
Single	**GNT**	**Single**	**GNT**
Start: 100.00 g End: 149.99 g 125.01 g Cls: 2	Start: 100.00 g End: 149.99 g Net: 125.01 g Tare: 50.01 g Gross: 175.01 g Cls: 2	Date: 2026.03.27 Time: 11:56:01 Start: 100.00 g End: 149.99 g 125.01 g Cls: 2	Date: 2026.03.27 Time: 11:56:01 Start: 100.00 g End: 149.99 g Net: 125.01 g Tare: 50.01 g Gross: 175.01 g Cls: 2

GLP		User	
Single	**GNT**	**Single**	**GNT**
---------- Model: FKS 15K-3M SN: WD240067328 AliID: 349 User text ---------- Date: 2026.03.27 Time: 11:56:20 ---------- Start: 100.00 g End: 149.99 g 125.01 g Cls: 2 ---------- -Signature- ----------	---------- Model: FKS 15K-3M SN: WD240067328 AliID: 349 User text ---------- Date: 2026.03.27 Time: 11:56:20 ---------- Start: 100.00 g End: 149.99 g Net: 125.01 g Tare: 50.01 g Gross: 175.01 g Cls: 2 ---------- -Signature- ----------	Model: FKS 15K-3M SN: WD240067328 AliID: 349 ---------- User text ---------- Date: 2026.03.27 Time: 11:44:12 ---------- Start: 100.00 g End: 149.99 g 125.01 g Cls: 2 ---------- -Signature- ----------	Model: FKS 15K-3M SN: WD240067328 AliID: 349 ---------- User text ---------- Date: 2026.03.27 Time: 11:44:12 ---------- Start: 100.00 g End: 149.99 g Net: 125.01 g Tare: 50.01 g Gross: 175.01 g Cls: 2 ---------- -Signature- ----------

Print layout: Tolerance Weighing application

<SUM> → <oFF>

MIN		DTW	
Single	**GNT**	**Single**	**GNT**
Tgt: 545 pcs Low: 455 pcs Up: 455 pcs 399.93 g 40 pcs UW: 10.02 g Ref: 25 pcs Check: Low	Tgt: 545 pcs Low: 455 pcs Up: 455 pcs Net: 399.93 g Tare: 0.92 g Gross: 400.85 g Pcs: 40 pcs UW: 10.02 g Ref: 25 pcs Check: Low	Date: 2026.03.27 Time: 11:56:13 Tgt: 545 pcs Low: 455 pcs Up: 455 pcs 399.93 g 40 pcs UW: 10.02 g Ref: 25 pcs Check: Low	Date: 2026.03.27 Time: 11:56:13 Tgt: 545 pcs Low: 455 pcs Up: 455 pcs Net: 399.93 g Tare: 0.92 g Gross: 400.85 g Pcs: 40 pcs UW: 10.02 g Ref: 25 pcs Check: Low

GLP		User	
Single	**GNT**	**Single**	**GNT**
---------- Model: FKS 15K-3M SN: WD240067328 AliID: 349 User text ---------- Date: 2026.03.27 Time: 11:56:11 ---------- Tgt: 545 pcs Low: 455 pcs Up: 455 pcs 399.93 g 40 pcs UW: 10.02 g Ref: 25 pcs Check: Low ---------- -Signature- ----------	---------- Model: FKS 15K-3M SN: WD240067328 AliID: 349 User text ---------- Date: 2026.03.27 Time: 11:56:11 ---------- Tgt: 545 pcs Low: 455 pcs Up: 455 pcs Net: 399.93 g Tare: 0.92 g Gross: 400.85 g Pcs: 40 pcs UW: 10.02 g Ref: 25 pcs Check: Low ---------- -Signature- ----------	Model: FKS 15K-3M SN: WD240067328 AliID: 349 ---------- User text ---------- Date: 2026.03.27 Time: 11:44:23 ---------- Tgt: 545 pcs Low: 455 pcs Up: 455 pcs 399.93 g 40 pcs UW: 10.02 g Ref: 25 pcs Check: Low ---------- -Signature- ----------	Model: FKS 15K-3M SN: WD240067328 AliID: 349 ---------- User text ---------- Date: 2026.03.27 Time: 11:44:23 ---------- Tgt: 545 pcs Low: 455 pcs Up: 455 pcs Net: 399.93 g Tare: 0.92 g Gross: 400.85 g Pcs: 40 pcs UW: 10.02 g Ref: 25 pcs Check: Low ---------- -Signature- ----------

7.5 Interface protocol / input codes

KCP is a standardised interface command set for KERN scales, which allows the retrieval and control of numerous parameters and device functions. KERN devices with KCP can therefore be easily connected 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 on our KERN website (➡ www.kern-sohn.com).

To activate KCP, please refer to the menu overview in your scales’ operating instructions.

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

The KCP commands supported by your scale can be queried by sending the command “I0” followed by <CR><LF>.

Table 1: Extract of the most commonly used KCP commands:

Command	Description
I0	Display all implemented KCP commands
S	Send stable value
SI	Send current value (including unstable)
SIR	Send current value (including unstable) and repeat
T	Tare
Z	Zero

Example: Possible responses for command “S”

Possible answer	Description
S␣S␣␣␣␣100.00␣g	Command accepted, command execution has started
S␣I	Another command is currently being executed; timeout reached
S␣+ or S␣-	Overload or underload

7.6 KERN Alias 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 at any time via the PC.

Functions of the alibi memory:

- **Storage capacity:** Up to 250,000 weighing results. When the memory is full, the oldest IDs are overwritten (starting with the first ID).
- **Storage:** Via **[PRINT]**, the KCP command "S" or "MEMPRT". The following are stored:
  - Weighing 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 data record with ID 15.
  - MEMQID 15 20: Returns data records from ID 15 to 20.

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

Protection of stored data

- After storage, each data record is immediately read back and checked byte by byte. If errors are found, the data record is marked as invalid. Error-free data records can be printed if required.
- A checksum protection is stored in every 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 when the device is switched on.
- A write authorisation procedure is carried out before a record is saved.
- A write lock is applied immediately after saving (prior to verification).
- The storage system guarantees a data retention period of at least 20 years.

8 Basic operation

8.1 Switch on the device

⚠ WARNING

Serious injury from damaged power supplies

Damaged power adapters can lead to short circuits, fires and serious injury.

- ⇨ Before each use, check the power supply unit and power cable for visible damage. Do not use the power supply unit if there is any damage.

⚠ WARNING

Injuries caused by incorrect handling of power adapters

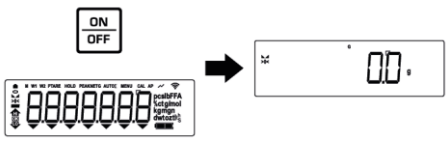
Incorrect handling of power adapters can lead to short circuits, fires and serious injuries.

- ⇨ Observe the safety instructions for handling power adapters. ➦ Chapter 2.3
- ⇨ Keep moisture away from the mains connection, the power supply unit and the socket.
- ⇨ Only connect the device to a properly installed socket.
- ⇨ Ensure that the power supply unit's cable is never kinked or trapped.
- ⇨ Ensure that the power supply unit is accessible at all times.
- ⇨ Ensure that the power cable does not pose a tripping hazard.
- ⇨ Only connect the power supply unit to the mains if the specifications on the unit (sticker) and the mains voltage at the place of use are identical.

NOTE

Incorrect weighing results

Ensure that the scale has reached its operating temperature before you start weighing. ➦ Chapter 19.1

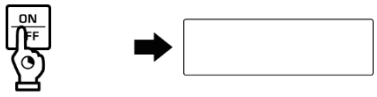


➢ Press **[ON/OFF]**.

⇨ The display lights up.

⇨ The scale is ready for use.

8.2 Switch off the device



➢ Hold down **[ON/OFF]**.

⇨ The display switches off.

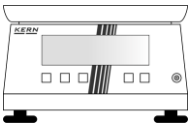
⇨ The scale is switched off.

8.3 Zeroing

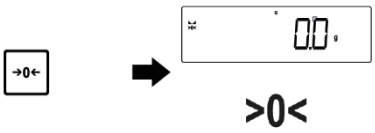
Zeroing a scale sets the display to zero, so that no weight is displayed when the weighing platform is unloaded. This ensures measurement accuracy by compensating for slight deviations or external influences.

By default, the zero point can be set within a range of +/- 2% of the maximum weighing range. If this range is exceeded or not reached, an error message will appear. ➦ Chapter 18.1

The zeroing range can be adjusted individually. ➦ Chapter 6.11



1. Unload the scale.



2. Press **[ZERO]**.

⇨ Zero and stability are displayed.

⇨ The scale is set to zero.

8.4 Taring

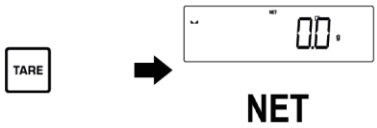
At the touch of a button, the tare weight of any weighing container can be compensated for, so that the net weight of the sample is displayed during subsequent weighings.

- *After removing the container, the weight of the container appears as a negative value (minus)*
- *To clear the stored tare value, remove the load from the weighing platform and tare or zero the scale.*
- *The taring process can be repeated as many times as required. The limit is reached when the taring range is fully utilised.*
- *The taring process can be repeated as many times as required, for example when weighing in several components to form a mixture (additional weighing). The limit is reached when the taring range is fully utilised.*
- *With the pre-tare function, a tare weight can be permanently stored ➦ Chapter 8.4.2*

8.4.1 Taring

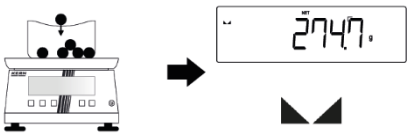
Tare

1. Place the empty container on the weighing platform.
   ⇨ The weight of the container and the stability indicator are displayed.



2. Press **[TARE]**.
   ⇨ Zero and “Net” are displayed.
   ⇨ The weight of the container is saved as the tare.

Weighing with tare



3. Place the item to be weighed into the container.
   ⇨ The weight and 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 useful in processes where containers of the same weight are always used.

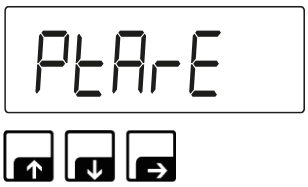
- *Up to 4 pre-tare memory slots can be used.*
- *The tare weight remains valid until a new tare weight is saved or the tare weight is deleted.*
- *The most recently saved tare weight can be recalled: open the application menu and select* <PTARE> → <RECALL>*.*
- *There are two ways to delete the tare weight:*
  - *Unload the scale and press* **[TARE]***.*
  - *Open the application menu and select* <PTARE> → <CLEAR>*.*

Option 1: Place the tare weight on the platform and save

1. Place an empty container on the weighing platform.

2. Hold down **[TARE]**.

⇨ The application menu opens.

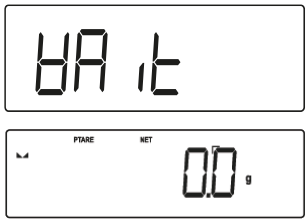


3. Select <PTARE> (**[🡅]** / **[🡇]**) and confirm (**[➔]**).

⇨ “PTARE 1” flashes at the top of the display.

4. Select a memory location and confirm.

⇨ The selected memory location and <ACTUAL> are displayed.



5. Press **[➔]**.

⇨ <WAIT> is displayed.

⇨ The scale switches to operating mode.

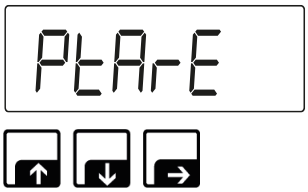
⇨ “Net” and “PTARE” are displayed.

⇨ The tare weight is saved.

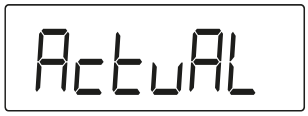
Option 2: Enter tare weight manually

Note: The entry is made in the current weighing unit.

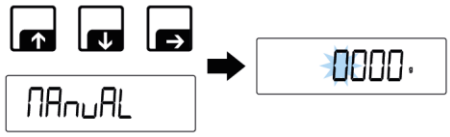
1. Hold down **[TARE]**.
   ⇨ The application menu opens.



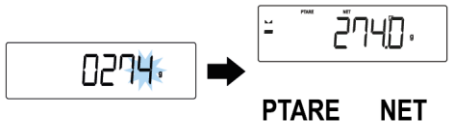
2. Select (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ “PTARE 1” flashes at the top of the display.



3. Select a memory location and confirm.
   ⇨ The selected memory location and <ACTUAL> are displayed.



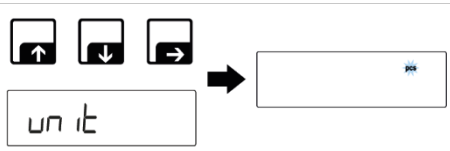
4. Select <MANUAL> (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The display switches to numeric input.



5. Enter the tare weight (select a digit: **[↑]** / **[↓]**, next digit: **[→]**) and confirm (**[→]**).
   ⇨ The scale switches to operating mode.
   ⇨ “Net” and “PTARE” are displayed.
   ⇨ The tare weight is saved.

8.5 Setting the unit

1. Hold down **[TARE]**.
   ⇨ The application menu opens.



2. Select <UNIT> (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The selected unit is displayed.

3. Select the unit (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The scale returns to operating mode.
   ⇨ Press **[CHANGE]** to switch between units.

8.6 Selecting an application

Open the application menu

1. Hold down **[TARE]**.
   ⇨ <APCMENU> followed by the currently active application is displayed.

Select application

2. Select <MoDE> (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The application selection is displayed.

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

<WEIH>	Weighing ➞ Chapter 9
<CoUNT>	Counting ➞ Chapter 10
<CHECK>	Tolerance weighing ➞ Chapter 11
<CLASS>	Classification ➞ Chapter 12

   ⇨ The scale returns to operating mode.
   ⇨ Application is now active.

9 Weighing application

Instructions for zeroing are described in ➦ Chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**, and for taring in ➦ Chapter 8.4. 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
<HoLD>	Hold weighing value (data-hold)	➦ Chapter 9.3
<UNIT>	Set the weighing units	➦ Chapter 9.4
<MoDE>	Select an application	➦ Chapter 8.6

9.2 Performing a simple weighing

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

1. Check the zero display and, if necessary, zero the scale using **[ZERO]**.
2. Place the item to be weighed on the weighing platform.
   - ⇨ The weight value and stability indicator are displayed.
   - ⇨ The result can be read.

9.3 Hold function

The Hold function allows you to "freeze" the displayed weight value. After removing the load from the scale, the value remains visible on the display for 10 seconds.

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

1. Place the item to be weighed on the scale.
2. Hold down **[TARE]**.
   - ⇨ The application menu opens.
3. Select <HoLD> (**[🡅]** / **[🡇]**) and confirm (**[➔]**).
   - ⇨ The “HOLD” indicator flashes.
   - ⇨ The first stable weight reading is “frozen” and indicated by the “Hold” symbol.

For quicker access, the Hold function can be assigned to a key.
➦ Chapter 6.7

9.4 Setting the unit

1. Hold down **[TARE]**.
   ⇨ The application menu opens.
2. Select (**[↑]** / **[↓]**) and confirm (**[➔]**).
   ⇨ The unit flashes.
3. Select the unit (**[↑]** / **[↓]**) and confirm (**[➔]**).
   ⇨ The unit stops flashing.
   ⇨ The scale switches to operating mode.
   ⇨ The value is displayed in the set unit.

Press **[CHANGE]** *to switch the display between units (default setting).*

9.5 Percentage weighing

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

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

1. Hold down **[TARE]**.
   ⇨ The application menu opens.
2. Select <UNIT> (**[↑]** / **[↓]**) and confirm (**[➔]**).
   ⇨ The display switches to the unit selection.
3. Place the reference weight corresponding to 100% on the platform.
4. Select “%” (**[↑]** / **[↓]**) and confirm (**[➔]**).
   ⇨ The weight value of the reference weight is displayed and flashes.
5. Press **[➔]**.
   ⇨ The scale switches to operating mode and displays 100%.
   ⇨ When weighing further loads, their weight is displayed as a percentage of the reference weight.

9.6 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 <UNIT> (**[🡅]** / **[🡇]**) and confirm (**[🡆]**).
   ⇨ The display switches to the unit selection.
3. Place the reference weight corresponding to 100% on the platform.
4. Select <FFA> (**[🡅]** / **[🡇]**) and confirm (**[🡆]**).
   ⇨ The display switches to numerical input.
5. Enter the factor (select number: **[🡅]** / **[🡇]**, next number: **[🡆]**) and confirm (**[🡆]**).
   ⇨ The scale switches to operating mode and displays the weight multiplied by the factor.

10 Counting application

Instructions on how to select the application are described in ➦ Chapter 8.6.

10.1 Overview of the “Counting” application menu

Level 1	Level 2	Level 3	Description	Further information
<REF>			Select reference quantity or enter reference weight	➦ Chapter 10.2
<PTARE>			Save known tare weight (pre-tare)	➦ Chapter 8.4.2
<CHECK>	<TYPE>	<ABS>	Checking the number of items (limit values)	➦ Chapter 10.5
		<REL>	Weighing the target number of pieces (deviations)	➦ Chapter 10.4
	For <TYPE> = <ABS>			
	<LIMUPP>		Upper limit	
	<LIMLoW>		Lower limit	
	For <TYPE> = <REL>			
	<VALUE>		Target quantity	
	<ERRUPP>		Upper tolerance	
	<ERRLoW>		Lower tolerance	

Level 1	Level 2	Level 3	Description	Further information
<CHECK>	<NoSIG>		Define the range that is not taken into account in the tolerance assessment.	
	<BEEPER>	<CH-oK> (Value within tolerances / limit values)	Sound when tolerance is exceeded • <oFF>*: no sound • <SLoW>: slow beep • <STD>: normal beep • <FAST>: fast beep • <CoNT>: continuous tone	
		<CH-Lo> (Below lower tolerance / below lower limit)		
		<CH-HI> (Upper tolerance / upper limit exceeded)		
	<RESET>		Reset values	
<UNIT>			Set weighing units	➦ Chapter 8.5
<MoDE>			Select application	➦ Chapter 8.6

10.2 Setting the reference quantity

Option 1: Select a predefined reference quantity

1. If necessary, place a weighing container on the scale and tare it.
2. Place the desired number of reference pieces on the scale.
3. Hold down **[TARE]**.
   - ⇨ The application menu opens.
   - ⇨ <REF> is displayed.
4. Confirm with **[➔]**.
   - ⇨ The selection for the number of reference samples is displayed.
5. Select the desired 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. ➦ Variant 2
INPUT	Enter the average unit weight. ➦ Option 3

   - ⇨ The scale switches to operating mode and displays the count.
   - ⇨ The scale is now ready to count parts.

Option 2: Setting a custom reference count

1. If necessary, place a weighing container and tare it.
2. Place the desired number of reference pieces on the scale.
3. Hold down **[TARE]**.
   - ⇨ The application menu opens.
   - ⇨ <REF> is displayed.
4. Confirm with **[➔]**.
   - ⇨ The selection for the number of reference pieces is displayed.
5. Select <FREE> (**[🡅]** / **[🡇]**) and confirm (**[➔]**).
   - ⇨ The display switches to numeric input.
   - ⇨ The last setting is displayed and flashes.
6. Enter the desired reference quantity (select number: **[🡅]** / **[🡇]**, next number: **[➔]** and confirm **[➔]**).
   - ⇨ The scale returns to operating mode and displays the number of pieces.
   - ⇨ The scale is now ready to count parts

Option 3: Enter average piece weight

1. Hold down **[TARE]**.
   - ⇨ The application menu opens.
   - ⇨ <REF> is displayed.
2. Confirm with **[➔]**.
   - ⇨ The selection for the reference quantity is displayed.
3. Select <INPUT> (**[🡅]** / **[🡇]**) and confirm (**[➔]**).
   - ⇨ The display switches to the weighing unit setting.
4. Select the weighing unit (**[🡅]** / **[🡇]**) and confirm **[➔]**).
   - ⇨ The display switches to the decimal place setting.
5. Select the decimal place (**[🡅]** / **[🡇]**) and confirm **[➔]**).
   - ⇨ The display switches to numerical input.
6. Enter the unit weight (select number: **[🡅]** / **[🡇]**, next number: **[➔]** and confirm **[➔]**).
   - ⇨ The scale returns to operating mode and displays the number of pieces.
   - ⇨ The scale is now ready to count parts

10.3 Performing a simple piece count

1. Set the reference quantity. ➦ Chapter 10.2
2. If necessary, place a weighing container and tare it.
3. Weigh the parts.
   ⇨ The piece count and stability indicator are displayed.
   ⇨ The count can be read.

Press **[CHANGE]** *to switch the display between the current count and the total weight (default setting).*

10.4 Weighing the target number of pieces

Select application mode

1. Hold down **[TARE]**.
   ⇨ The application menu opens.
2. Select <CHECK> → <TYPE> → <REL> (**[↑]** / **[↓]**) and confirm (**[➔]**).
   ⇨ Application mode is active.

Set target piece count and tolerances

3. Set the reference quantity. ➦ Chapter 10.2
4. Hold down **[TARE]**.
   ⇨ The application menu opens.

Enter target piece count

5. Select <CHECK> → <VALUE> (**↑ /↓**) and confirm (**➔**).
   ⇨ The display switches to numerical input.
6. Enter the target quantity (select number: **[↑]** / **[↓]**, next number: **[➔]** and confirm **[➔]**).
   ⇨ Display switches to <VALUE>

Enter upper tolerance

7. Select <ERRUPP> (**[↑]** / **[↓]**) and confirm (**[➔]**).
   ⇨ The display switches to the unit selection.
8. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[➔]**).
   ⇨ The display switches to numerical input.
9. Enter the upper tolerance (select number: **[↑]** / **[↓]**, next number: **[➔]** and confirm **[➔]**).
   ⇨ The display switches to <ERRUPP>.

Enter lower tolerance

10. Select <ERRLoW> (**[↑]** / **[↓]**) and confirm (**[➔]**).
    ⇨ The display switches to the unit selection.
11. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[➔]**).
    ⇨ The display switches to numerical input.
12. Enter the lower tolerance (select a number: **[↑]** / **[↓]**, next number: **[➔]** and confirm **[➔]**).
    ⇨ The display changes to <ERRLoW>.
13. Press **[🡐]** repeatedly to exit the menu.

Weigh the target number of items

1. If necessary, place a weighing container and tare it.
2. Weigh the parts.
   ⇨ The number of pieces, stability indicator and tolerance marks are displayed.
   ⇨ The result can be read.

- *Press* **[CHANGE]** *to switch the display between the current count 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 clear the values, proceed as follows:*

  Open the application menu and select <CHECK> → <RESET>*.*

10.5 Checking the number of pieces (limit values)

Select application mode

1. Hold down **[TARE]**.
   ⇨ The application menu opens.
2. Select <CHECK> → <TYPE> → <ABS> (**[↑]**/**[↓]**) and confirm (**[→]**).
   ⇨ Application mode is active.
3. Set the reference quantity. ➦ Chapter 10.2
4. Hold down **[TARE]**.
   ⇨ The application menu opens.

Enter upper limit

5. Select <CHECK> → <LIMUPP> (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The display switches to numerical input.
6. Enter the upper limit (select a number: **[↑]** / **[↓]**, next number: **[→]** and confirm **[→]**).
   ⇨ Display changes to <LIMUPP>

Enter lower limit

7. Select <LIMLoW> (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The display switches to numerical input.
8. Enter the lower limit (select number: **[↑]** / **[↓]**, next number: **[→]** and confirm **[→]**).
   ⇨ The display changes to <LIMLoW>.
9. Press **[←]** repeatedly to exit the menu.

Check the number of items

1. If necessary, place a weighing container and tare it.
2. Weigh the parts.
   ➢ The number of pieces, stability indicator and tolerance marks are displayed.
   ➢ The result can be read.

- *Press* **[CHANGE]** *to switch the display between the current count 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 clear the values, proceed as follows:*

  Open the application menu and select <CHECK> → <RESET>.

11 Tolerance Weighing application

Instructions for selecting the application are described in ➦ Chapter 8.6.

11.1 Overview of the “Tolerance Weighing” application menu

Level 1	Level 2	Level 3	Description	Further information
<CHECK>	<TYPE>	<ABS>	Check weight (upper and lower limits)	➦ Chapter 11.3
		<REL>	Weigh the target weight (deviations)	➦ Chapter 11.2
	For <TYPE> = <ABS>			
	<LIMUPP>		Upper limit	
	<LIMLoW>		Lower limit	
	For <TYPE> = <REL>			
	<VALUE>		Target weight	
	<ERRUPP>		Upper tolerance	
	<ERRLoW>		Lower tolerance	

Level 1	Level 2	Level 3	Description	Further information
<CHECK>	<NoSIG>		Define the range that is not taken into account in the tolerance assessment.	
	<BEEPER>	<CH-oK> (Value within tolerances / limit values)	Sound when tolerance is exceeded • <oFF>*: no sound • <SLoW>: slow beep • <STD>: normal beep • <FAST>: fast beep • <CoNT>: continuous tone	
		<CH-Lo> (Below lower tolerance / below lower limit)		
		<CH-HI> (Upper tolerance / upper limit exceeded)		
	<RESET>		Reset values	
<PTARE>			Save known tare weight (pre-tare)	➦ Chapter 8.4.2
<UNIT>			Set weighing units	➦ Chapter 8.5
<MoDE>			Select an application	➦ Chapter 8.6

11.2 Weigh the target weight

1. Hold down **[TARE]**.
   ⇨ The application menu opens.
2. Select <CHECK> → <TYPE> → <REL> (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ Application mode is active.
3. Select <CHECK> → <VALUE> (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The display switches to numeric input.
4. Enter the target weight (select a number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).
   ⇨ Display changes to <VALUE>
5. Select <ERRUPP> (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The display switches to the unit selection.
6. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The display switches to numerical input.
7. Enter the upper tolerance (select number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).
   ⇨ Display switches to <ERRUPP>
8. Select <ERRLoW> (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The display switches to the unit selection.
9. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[→]**).
   ⇨ The display switches to numerical input.
10. Enter the lower tolerance (select number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).
    ⇨ The display changes to <ERRLoW>
11. Press **[←]** repeatedly to exit the menu.

Weigh the target weight

1. If necessary, place a weighing container and tare it.
2. Weigh the parts.
   - ⇨ The weight, stability indicator and tolerance marks are displayed.
   - ⇨ The result can be read.

11.3 Check the weight (limit values)

1. Hold down **[TARE]**.
   - ⇨ The application menu opens.
2. Select <CHECK> → <TYPE> → <REL> (**[↑]** / **[↓]**) and confirm (**[→]**).
   - ⇨ Application mode is active.
3. Select <CHECK> → <VALUE> (→) (**[↑]** / **[↓]**) and confirm (**[→]**).
   - ⇨ The display switches to numerical input.
4. Enter the target weight (select number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).
   - ⇨ Display switches to <VALUE>
5. Select <ERRUPP> (**[↑]** / **[↓]**) and confirm (**[→]**).
   - ⇨ The display switches to the unit selection.
6. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[→]**).
   - ⇨ The display switches to numerical input.
7. Enter the upper tolerance (select number: **[↑]** / **[↓]**, next number: **[→]**) and confirm (**[→]**).
   - ⇨ Display switches to <ERRUPP>
8. Select <ERRLoW> (**[↑]** / **[↓]**) and confirm (**[→]**).
   - ⇨ The display switches to the unit selection.
9. Select the desired unit (**[↑]** / **[↓]**) and confirm (**[→]**).
   - ⇨ The display switches to numerical input.

10. Enter the lower tolerance (select a number: **[🡅]** / **[🡇]**, next number: **[🡆]**) and confirm (**[🡆]**).
    ⇨ Display changes to <ERRLoW>
11. Press **[🡄]** repeatedly to exit the menu.

Check the weight

1. If necessary, place the weighing container and tare.
2. Weigh the parts.
    - The number of pieces, stability indicator and tolerance marks are displayed.
    - The result can be read.

12 Classifying application

Instructions for selecting the application are described in ➦ Chapter 8.6.

Classification is a weighing application that allows weight classes to be assigned to different colours in order to simplify the categorisation of different items.

The device offers Classifying function with up to 10 weight classes and 10 different colours.

12.1 Overview of the “Classifying” application menu

Level 1	Level 2	Level 3	Description	Further information
<CLASS>	<ADD>	<CLASS 0> - <CLASS 9>	Add weight class	➦ Chapter 12.2
	<UNIT>	<g>, <kg>, <ffa>, <oz>, <lb>, <gn>, <ct>, <t>, <%>, <cls>	Set weighing units	
	<CLEAR>		Delete weight classes	Confirm <SURE?> prompt with **[➔]**
	<LoAD>	SET <0> to <9>	Select weight class	
	<SAVE>	SET <0> to <9>	Save weight class	
	<DELAY>	<STAB> <0.0 s> <0.5 s> <1.0 s> <1.5 s> <2.0 s> <2.5 s> <3.0 s>	Delay time after which the colour bar for the weight class lights up <STAB>: Colour bar only lights up after the stability indicator	
	<MoDIFY>		Change saved weight classes	➦ Chapter 12.3

12.2 Add weight class

<CLASS> → <ADD>

Submenu	Submenu	Description	Settings
<CLASS 0> - <CLASS 9>	<VALUE>	Enter value	
	<CoLoR>	Assign colour to the colour bar	<NoNE>, <WHITE>, <MAGENTA>, <PURPLE>, <BLUE>, <CYAN>, <TEAL>, <GREEN>, <YELLoW>, <oRANGE>, <RED>
	<SUBMIT>	Save weight class	

Each weight class is defined by entering its start value. The end value is automatically set to a value that is one digit of readability (1d) below the start value of the next class. The last (highest) weight class is limited by the maximum capacity of the scale.

1. Press and hold **[TARE]**.
   - ⇨ The application menu opens.
   - ⇨ <CLASS> is displayed.
2. Press **[➔]**.
3. Select <ADD> (**[🡅]** / **[🡇]**) and confirm (**[➔]**).
4. Select the desired weight class (**[🡅]** / **[🡇]**) and confirm (**[➔]**).
   - ⇨ The display changes to <VALUE>
5. Enter the starting value for the weight class (select a number: **[🡅]** / **[🡇]**, next number: **[➔]**) and confirm (**[➔]**).
6. Select <CoLoR> (**[🡅]** / **[🡇]**) and confirm (**[➔]**).
   - ⇨ The display switches to the colour selection screen.
7. Select the desired colour for the weight class (**[🡅]** / **[🡇]**) and confirm (**[➔]**).
8. Select <SUBMIT> (**[🡅]** / **[🡇]**) and confirm (**[➔]**).
   - ⇨ The weight class is saved.
9. Repeat steps 4 to 8 until all required weight classes have been created.

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

12.3 Change weight class

<CLASS> → <MoDIFY>

Submenu	Submenu	Description	Settings
<CLASS 0> - <CLASS 9>	<VALUE>	Enter value	
	<CoLoR>	Change colour bar colour	<NoNE>, <WHITE>, <MAGENTA>, <PURPLE>, <BLUE>, <CYAN>, <TEAL>, <GREEN>, <YELLoW>, <oRANGE>, <RED>
	<CLEAR>	Delete weight class	

1. Press and hold **[TARE]**.
   - ⇨ The application menu opens.
   - ⇨ <CLASS> is displayed.
2. Press **[🡒]**.
3. Select <MODIFY> (**[🡅]** / **[🡇]**) and confirm (**[🡒]**).
4. Select the desired weight class (**[🡅]** / **[🡇]**) and confirm (**[🡒]**).
   - ⇨ The display changes to <VALUE>
5. Enter the starting value for the weight class (select a number: **[🡅]** / **[🡇]**, next number: **[🡒]**) and confirm (**[🡒]**).
6. Select <CoLoR> (**[🡅]** / **[🡇]**) and confirm (**[🡒]**).
   - ⇨ The display switches to the colour selection screen.
7. Select the desired colour for the weight class (**[🡅]** / **[🡇]**) and confirm (**[🡒]**).
8. Press **[🡐]** to return to the weight class overview.

9. Repeat steps 4 to 8 until all the required weight classes have been created.

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

12.4 Display class information

It is also possible to switch from the current unit to class information using the **[CHANGE]** button. The class information is defined in the Classifying default settings or can be selected via the <UNIT> submenu.

1. Press the **[CHANGE]** key. <cls> is displayed.
   ⇨ The weight display now shows the class to which the item currently on the scale belongs.

2. Press the **[CHANGE]** key again.
   ⇨ Return to the selected unit.

13 Other functions

13.1 Using the totalisation function

The totalisation function allows the weight values of individual weighings to be added together.

To use the totalisation function, your scale must be connected to a printer or PC.

Activate function

1. Open the setup menu.
2. Select <PRINT> <→ <SUM> <→ <oN>.
3. Exit the menu.

Using the function

4. If necessary, place a weighing container on the platform and tare.
5. Place the first item to be weighed on the weighing platform.
   ⇨ The stability indicator appears.
6. Press **[PRINT]**.
   ⇨ The value is stored in the total memory and the display changes to <SUM>, followed by the current weight value.
   ⇨ The total symbol appears.
   ⇨ The result is sent to the printer or PC.
7. Remove the item being weighed.
8. Add further items to be weighed as in steps 5 to 7.
   ⇨ The number of weighings is displayed via <SUM 1>, <SUM 2>, <SUM 3> and so on.

Print the total weight and clear the total memory

- Hold down **[PRINT]**.
  - ⇨ The number of weighings and the total weight are displayed.
  - ⇨ The total memory is cleared, and the total symbol disappears.
  - ⇨ The result is sent to the printer or PC.

14 Care, maintenance and servicing

14.1 Cleaning

14.1.1 Safety during cleaning

⚠ DANGER

Electric shock from live parts

Contact with live parts can result in electric shock and burns.

- ⇨ Installation, cleaning, maintenance and servicing work must only be carried out by qualified personnel.
- ⇨ Disconnect live parts from the power supply.
- ⇨ Carry out installation, cleaning, maintenance and servicing work only on equipment that has been switched off and disconnected from the power supply, unless the relevant instructions specify otherwise.
- ⇨ Follow the instructions in this document.

NOTE

Damage to property caused by incorrect cleaning

Unsuitable cleaning agents can cause damage to the device.

- ⇨ Do not use aggressive cleaning agents (e.g. solvents).
- ⇨ Do not use metal brushes or steel wool scouring pads.
- ⇨ Do not open the device. There are no parts inside that may be cleaned.

14.1.2 Recommended cleaning

1. Switch off the device.
2. Disconnect the device from the mains supply.
3. Immediately remove any spilled material (e.g. loose sample residues or powder) using a brush or handheld vacuum cleaner.
4. Clean the device with a mild cleaning agent (e.g. soapy water) and a soft cloth.
5. Rub the device dry with a dry, lint-free cloth.

14.2 Maintenance

14.2.1 Safety during maintenance

⚠ DANGER

Electric shock from live parts

Contact with live parts can result in electric shock and burns.

- ⇨ Installation, cleaning, maintenance and repair work must only be carried out by qualified personnel.
- ⇨ Disconnect live parts from the power supply.
- ⇨ Carry out installation, cleaning, maintenance and servicing work only on equipment that has been switched off and disconnected from the power supply, unless the relevant instructions specify otherwise.
- ⇨ Follow the instructions in this document.

14.2.2 Maintenance schedule

Interval	Maintenance task	Description
Regular	Levelling	• Level the scale after each change of location. • Check the levelling regularly.

14.3 Test equipment monitoring

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 test equipment for scales and the test weights required for this 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 standard).

15 Decommissioning and storage

15.1 Taking the device out of service

1. When operating on battery power: Charge the battery if the device is to be stored for a prolonged period to prevent deep discharge.
2. Switch off the device.
3. Disconnect the device from the mains:
   - Disconnect the power supply from the mains and remove it from the device.
4. Remove all loose/movable parts from the device.
5. Remove all interface cables.
6. Pack the device and all associated parts neatly in the original packaging.
   ⇨ The device is now ready for storage. ➦ Chapter 15.2

15.2 Storing the device

NOTE

Damage caused by incorrect storage

Improper storage can cause damage to the device.

⇨ Take the device out of service in accordance with the instructions in this document ➦ Chapter 15.1

⇨ Store the device in its original packaging.

⇨ Do not store the device outdoors.

⇨ Observe the ambient conditions specified in the technical data.

16 Warranty and returns

16.1 Warranty

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

16.2 Returns

- *Returns are not possible if you have used the device improperly and it has been damaged as a result.*
- *The original packaging with all associated parts must be used for returns.*
- *In the event of a return, the complete contents of the delivery must be returned.*

Procedure for returns

1. Check that all parts of the delivery are present.
2. Remove all loose and removable parts as well as any connected cables from the device.
3. Reattach the transport lock.
4. Reapply any protective films that may be present.
5. Pack all parts of the delivery contents in the original packaging and secure them so that they cannot slip around and become damaged.

17 Disposal

ENVIRONMENT

Damage to people and the environment caused by improper disposal

Non-biodegradable materials (e.g. plastics or metals) can enter the environment and cause damage if disposed of improperly.

Unrecycled material is a waste of resources and leads to increased environmental impact.

Electrical devices may contain substances that are not biodegradable and that harm 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 schemes or recycling centres in accordance with the applicable national or regional legislation at the place of use.

Disposal of electronic devices

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

If this device contains sensitive data, it is the operator's responsibility to delete this data before disposal.

Remove batteries and rechargeable batteries before disposing of the device and dispose of them separately.

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. The operator must dispose of batteries and rechargeable batteries in accordance with the applicable national or regional legislation in the user's location.

We are obliged to inform end users in accordance with the Battery Ordinance:

- End users are legally obliged to return used batteries and rechargeable batteries.
- Batteries and rechargeable batteries can be returned free of charge to local collection points or retailers after use. In the case of unused batteries/rechargeable batteries, short-circuiting must be prevented.
- Returns are limited to batteries and rechargeable batteries that we currently stock or have previously stocked, as well as to quantities typical for household use.
- If batteries or rechargeable batteries contain cadmium (Cd), mercury (Hg) or lead (Pb), the relevant symbol is shown beneath the wheelie bin symbol.

18 Troubleshooting

18.1 Error messages

Error description	Cause	Remedy
ZLiMiT	Zero range exceeded	Maintain zero range within +/- 2% of maximum weight
UnderZ	Value below the zero range	
INSTAB	Load unstable	• Place the load gently • Ensure stable ambient conditions • Eliminate electromagnetic fields
Wrong	Adjustment error	Repeat the adjustment
⌊_ _ _ _⌋	Underload	Weight must be at least equal to the minimum weight
⌈‾ ‾ ‾ ‾⌉	Overload	Apply less weight
Lo BAT	Battery capacity exhausted	Replace battery / charge rechargeable battery

18.2 Troubleshooting table

Fault description	Cause	Remedy
Display does not switch on	Display defective	Contact KERN Service
The device cannot be switched on	Power button defective	Contact KERN Service
	Power supply unit faulty or not plugged in	Check the power supply unit and plug it in
	Mains power failure	Wait
Display does not respond to load changes	Display defective	Contact KERN Service
	Load cell defective	Contact KERN Service
Displayed weight changes constantly	Load is moving	Place the load gently
	Unstable environmental conditions (e.g. draughts/air movements, vibrations of the table or floor)	Stabilise the environmental conditions or move the device to another location
	Weighing platform is in contact with foreign objects	Remove foreign objects
	Electromagnetic fields / static charge	If possible, switch off the interfering device or move the scale to a different location
	Load cell defective	Contact KERN Service
Result is incorrect	The scale is not zeroed	Remove the load from the scale and zero it
	Adjustment is no longer correct	Carry out the adjustment
	The scale is not level	Level the scale
	Significant fluctuations in ambient temperature	Stabilise ambient conditions or move the device to another location
	Electromagnetic fields / Static charge	If possible, switch off the interfering device or move the scale to a different location

19 Product specifications

19.1 Technical data

KERN	FKS 1K-4M	FKS 3K-3M
Item number / Type	TFKS 1K-4M-A	TFKS 3K-3M-A
Readability (d)	0.5 g	1 g
Weighing range (max.)	1500 g	3000 g
Minimum weight (min.)	10 g	20 g
Reproducibility	0.5 g	1 g
Linearity	± 1.5 g	± 3 g
Stabilization time (typical)	2 s	
Verification scale interval (e)	0.5 g	1 g
Verification class	III	III
Minimum part weight when counting pieces under laboratory conditions	500 mg	1 g
Minimum part weight when counting pieces under normal conditions	5 g	10 g
Adjustment points	500 g / 1 kg / 1.5 kg	1 kg / 2 kg / 3 kg
Recommended adjustment weight, not included, (class)	1.5 kg (M1)	3 kg (M1)
Acclimatisation time	10 min	
Weighing units	kg, g	
Humidity	max. 80% rel. (non-condensing)	
Permissible ambient temperature	-10–+40 °C	
Input voltage, device	5 V; 2.7 A	
Input voltage, power supply	100–240 V AC 50 / 60 Hz	
Battery operation (optional)	Operating time 15 h Charging time approx. 5 h	
Dimensions (fully assembled)	325 x 230 x 60 mm	
Dimensions of weighing plate	228 x 228 mm	
Net weight (kg)	3.6 kg	
Interfaces	Factory options: RS-232, Ethernet, WiFi, analogue (4–20 mA), Bluetooth BLE (v4.0), USB-D	

KERN	FKS 6K-3M	FKS 15K-3M
Item number / Type	TFKS 6K-3M-A	TFKS 15K-3M-A
Readability (d)	2 g	5 g
Weighing range (max.)	6000 g	15 kg
Minimum weight (min.)	40 g	100 g
Reproducibility	2 g	5 g
Linearity	± 6 g	± 0.015 kg
Stabilization time (typical)	2 s	
Verification scale interval (e)	2 g	5 g
Verification class	III	III
Minimum part weight when counting pieces under laboratory conditions	2 g	5 g
Minimum part weight when counting pieces under normal conditions	20 g	50 g
Adjustment points	2 kg / 4 kg / 6 kg	5 kg / 10 kg / 15 kg
Recommended adjustment weight, not included, (class)	6 kg (M1)	15 kg (M1)
Acclimatisation time	10 min	
Weighing units	kg, g	
Humidity	max. 80% rel. (non-condensing)	
Permissible ambient temperature	-10–+40 °C	
Input voltage, device	5 V; 2.7 A	
Input voltage, power supply	100–240 V AC 50 / 60 Hz	
Battery operation (optional)	Operating time 15 h Charging time approx. 5 h	
Dimensions (fully assembled)	325 x 230 x 60 mm	
Dimensions of weighing plate	228 x 228 mm	
Net weight (kg)	3.6 kg	
Interfaces	Factory options: RS-232, Ethernet, WiFi, analogue (4–20 mA), Bluetooth BLE (v4.0), USB-D	

KERN	FKS 30K-2M
Item number / Type	TFKS 30K-2M-A
Readability (d)	10 g
Weighing range (max.)	30 kg
Minimum weight (min.)	200 g
Reproducibility	10 g
Linearity	± 0.03 kg
Stabilization time (typical)	2 s
Verification scale interval (e)	10 g
Verification class	III
Minimum part weight when counting pieces under laboratory conditions	10 g
Minimum part weight when counting pieces under normal conditions	100 g
Adjustment points	10 kg / 20 kg / 30 kg
Recommended adjustment weight, not supplied, (class)	30 kg (M1)
Acclimatisation time	10 min
Weighing units	kg, g
Humidity	max. 80% rel. (non-condensing)
Permissible ambient temperature	-10–+40 °C
Input voltage, device	5 V; 2.7 A
Input voltage, power supply	100–240 V AC 50 / 60 Hz
Battery operation (optional)	Operating time 15 h Charging time approx. 5 h
Dimensions (fully assembled)	325 x 230 x 60 mm
Dimensions of weighing plate	228 x 228 mm
Net weight (kg)	3.6 kg
Interfaces	Factory options: RS-232, Ethernet, WiFi, analogue (4–20 mA), Bluetooth BLE (v4.0), USB-D

KERN	FKS 1K-5	FKS 3K-4
Item number / Type	TFKS 1K-5-A	TFKS 3K-4-A
Readability (d)	0.1 g	0.2 g
Weighing range (max.)	1500 g	3000 g
Reproducibility	0.1 g	0.2 g
Linearity	± 0.3 g	± 0.6 g
Stabilization time (typical)	2 s	
Minimum part weight when counting pieces under laboratory conditions	100 mg	200 mg
Minimum part weight when counting pieces under normal conditions	5 g	2 g
Adjustment points	500 g / 1 kg / 1.5 kg	1 kg / 2 kg / 3 kg
Recommended adjustment weight, not supplied, (class)	1.5 kg (M1)	3 kg (M1)
Weighing units	kg, g, lb, oz, ffa, %	
Humidity	max. 80% rel. (non-condensing)	
Permissible ambient temperature	-10–+40 °C	
Input voltage, device	5 V; 2.7 A	
Input voltage, power supply	100–240 V AC 50 / 60 Hz	
Battery operation (optional)	Operating time 15 h Charging time approx. 5 h	
Dimensions (fully assembled)	325 x 230 x 60 mm	
Dimensions of weighing plate	228 x 228 mm	
Net weight (kg)	3.6 kg	
Interfaces	Factory options: RS-232, Ethernet, WiFi, analogue (4–20 mA), Bluetooth BLE (v4.0), USB-D	

KERN	FKS 6K-4	FKS 15K-4
Item number / Type	TFKS 6K-4-A	TFKS 15K-4-A
Readability (d)	0.5 g	0.001 kg
Weighing range (max.)	6000 g	15 kg
Reproducibility	0.5 g	0.001 kg
Linearity	± 1.5 g	± 0.003 kg
Stabilization time (typical)	2 s	
Minimum part weight when counting pieces under laboratory conditions	500 mg	1 g
Minimum part weight when counting pieces under normal conditions	5 g	10 g
Adjustment points	2 kg / 4 kg / 6 kg	5 kg / 10 kg / 15 kg
Recommended adjustment weight, not supplied, (class)	6 kg (M1)	15 kg (M1)
Weighing units	kg, g, lb, oz, ffa, %	
Humidity	max. 80% rel. (non-condensing)	
Permissible ambient temperature	-10–+40 °C	
Input voltage, device	5 V; 2.7 A	
Input voltage, power supply	100–240 V AC 50 / 60 Hz	
Battery operation (optional)	Operating time 15 h Charging time approx. 5 h	
Dimensions (fully assembled)	325 x 230 x 60 mm	
Dimensions of weighing plate	228 x 228 mm	
Net weight (kg)	3.6 kg	
Interfaces	Factory options: RS-232, Ethernet, WiFi, analogue (4–20 mA), Bluetooth BLE (v4.0), USB-D	

KERN	FKS 30K-3
Item number / Type	TFKS 30K-3-A
Readability (d)	2 g
Weighing range (max.)	30 kg
Reproducibility	0.002 kg
Linearity	± 0.006 kg
Stabilization time (typical)	2 s
Minimum part weight when counting pieces under laboratory conditions	2 g
Minimum part weight when counting pieces under normal conditions	20 g
Adjustment points	10 kg / 20 kg / 30 kg
Recommended adjustment weight, not supplied, (class)	30 kg (M1)
Weighing units	kg, g, lb, oz, ffa, %
Humidity	max. 80% rel. (non-condensing)
Permissible ambient temperature	-10–+40 °C
Input voltage, device	5 V; 2.7 A
Input voltage, power supply	100–240 V AC 50 / 60 Hz
Battery operation (optional)	Operating time 15 h Charging time approx. 5 h
Dimensions (fully assembled)	325 x 230 x 60 mm
Dimensions of weighing plate	228 x 228 mm
Net weight (kg)	3.6 kg
Interfaces	Factory options: RS-232, Ethernet, WiFi, analogue (4–20 mA), Bluetooth BLE (v4.0), USB-D

19.2 Declaration of Conformity

The current EC/EU Declaration of Conformity can be found online at ➦ https://www.kern-sohn.com/shop/de/downloads/.

20 Contact details

KERN hotlines	**Technical questions about our products?** **Find quick help here: +49 7433 9933- ...**
Service Hotline	For general technical questions about your KERN product→ **199**
Laboratory and analytical balances	For all technical enquiries regarding our high-quality precision balances and analytical balances (particularly those with force-compensated measuring systems, tuning forks and high application density)→ **444**
EasyTouch (software)	For all technical enquiries regarding the installation and commissioning of the EasyTouch software→ **322**