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Operating instructions Data logger



KERN KXC-TM-EX2

Type TKXC-TM-EX2-A

Version 1.0

2026-06

en



TKXC-TM-EX2-A-BA-e-2610



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Version 1.0 2026-06

Operating Instructions Data logger

Contents

1	Safety instructions.....	5
1.1	Please observe the instructions in the operating manual	5
1.2	Staff training	5
1.3	Notes on explosion protection	5
2	Special conditions for safe use in potentially explosive areas.....	6
3	Technical data.....	7
4	Declaration of Conformity.....	8
5	Equipment overview.....	9
5.1	Components	9
5.2	Controls	10
5.2.1	Keyboard overview	10
5.2.2	Numeric input.....	11
5.2.3	Display overview.....	12
6	Basic information	13
6.1	Intended use.....	13
6.2	Improper use	13
6.3	Warranty.....	13
6.4	Test equipment monitoring	14
7	Transport and storage.....	14
7.1	Inspection on delivery	14
7.2	Packaging/Return	14
8	Unpacking, installation and commissioning.....	15
8.1	Installation site, place of use	15
8.2	Unpacking and Inspection	16
8.3	Mains connection.....	16
8.4	battery operation (alternative).....	17
8.4.1	Replacing the battery.....	18
8.4.2	Charging the battery	18
8.4.3	Battery operating times.....	19

8.5	Connection of peripheral devices	19
8.6	Initial commissioning	19
8.7	Adjustment of non-verifiable instruments.....	20
8.7.1	Perform adjustment using an external calibration weight	21
8.7.2	Perform calibration using an external, user-defined calibration weight	23
8.8	Calibration of verifiable instruments.....	25
9	Calibration.....	26
10	Basic operation	27
10.1	Switch on the.....	27
10.2	Switching off.....	27
10.3	Simple weighing	28
10.4	Tare.....	29
10.5	Tare.....	30
10.1	Quick function key assignments (default settings)	31
10.1.1	Switching the weighing unit	31
10.1.2	Displaying the gross weight	32
10.1.3	Open PRE-Tare settings.....	32
10.1.4	Executing the Data Hold function	32
11	Operating concept	33
12	<Weighing> application	35
12.1	Application-specific settings	35
12.2	PRE-Tare	37
12.2.1	Accept the applied weight as the PRE-TARE value	37
12.2.2	Enter the known tare weight numerically	38
12.3	Data-Hold function	39
12.4	Weighing units.....	40
12.4.1	Setting the weighing unit.....	40
12.4.2	Weighing with a multiplication factor via application unit <FFA>	42
12.4.3	Percentage weighing via the <%> application unit	43
13	<Counting> application	44
13.1	Application-specific settings	44
13.2	Setting the reference count	45
13.3	Performing a simple piece count	49
13.4	Target count weighing	49
13.5	Checking the number of items.....	52
14	Application < Tolerance Weighing >	55
14.1	Application-specific settings	55

14.2	Weighing to a target weight.....	56
14.3	Checkweighing.....	59
15	Menu.....	62
15.1	Navigating the menu	62
15.2	Application menu.....	62
15.3	Setup menu.....	63
16	Communication with peripheral devices	68
16.1	KERN Communications Protocol (KERN interface protocol).....	68
16.2	KERN Alibi memory	69
16.3	Output functions	70
16.3.1	Sum mode <Σ>	70
16.3.2	Manual data output <MANUAL>	72
16.3.3	Automatic data output <AUTO>	73
16.3.4	Continuous data output <CONT>.....	74
16.4	Set the output format to ' '	76
17	Maintenance, servicing, disposal	77
17.1	Cleaning	77
17.2	Maintenance.....	77
17.3	Disposal	77
18	Quick Troubleshooting Guide	78
19	Error messages	79

1 Safety instructions

1.1 Please observe the instructions in the operating manual



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

1.2 Staff training

The device must only be operated and maintained by trained staff.

Planning, installation, maintenance and repair must only be carried out by qualified personnel with the necessary and up-to-date knowledge of explosion protection. The qualified personnel must also have sound knowledge of handling scales.



Please observe EN 60079-14 and any country-specific requirements (Germany: Technical Rules for Operational Safety TRBS 1203).

1.3 Notes on explosion protection

- Observe the ATEX directives, the applicable standards and the local safety and accident prevention regulations during selection, installation, maintenance, repair and operation.
Further information on initial commissioning and periodic inspections for use within a potentially explosive atmosphere can be found in the installation instructions for the KXC-TM-EX2 signal conditioning unit.
- The device complies with Ex equipment category 3 and may only be used in zones 2 and 22.
- Do not connect or disconnect the terminals whilst they are live. Exception: The intrinsically safe battery YKR-04-EX2 may be connected to and disconnected from the KXC-TM-EX2 signal conditioning instrument in the hazardous area.
- The YKR-05-EX2 battery charger must only be operated in a safe area.
- The signal conditioning unit must only be opened by qualified personnel. It is essential to KXC-TM-EX2 installation instructions!
- Use a damp cloth for cleaning.
- Do not use solvents to clean plastic surfaces.
- Use the equipotential bonding connection on the evaluation unit and on the platform.
- Avoid tensile stress on the cable gland.

2 Special conditions for safe use in potentially explosive areas

In addition to the general requirements of EN 60079-14, the following must be observed:

- a) The devices may only be operated at ambient temperatures T_a of -10 to 40 °C. However, the battery must be charged at T_a of 0 to 40 °C outside the potentially explosive area.
- b) When operating on mains power, the green-yellow conductor of the signal conditioning unit must be connected to the protective conductor. In addition, the equipotential bonding conductor with a cross-section of at least 4 mm² must be connected to the external terminal below the U-shaped disc.
- c) When the signal conditioner is operated on battery power, the external earth connection must be used to dissipate electrostatic , the external earth connection must be permanently connected via a ring terminal with at least 1.5 mm² to a voltage-free and low-interference earth. The battery is earthed via its connection cable.
- d) To discharge electrostatic charges, the load cell's earth connection must be permanently connected via a ring terminal with a cross-section of at least 1.5 mm² to the external terminal of the evaluation unit.
- e) For battery operation, use type TYKR-04-EX2-d.
- f) The membrane keyboard cannot become dangerously charged during operation or when wiped by hand with a cloth. Other types of strong charging that could cause skittering discharges must be ruled out.
- g) The battery socket must be protected from dirt with the cap when the plug is not inserted.
- h) The signal conditioning unit must only be opened when de-energised, provided that an explosive atmosphere cannot occur. The interior of the unit must not be contaminated.

3 Technical data

KERN	KXC-TM-EX2	
Item number / Type	TKXC-TM-EX2-A	
Classification of evaluation unit TKXC-TM-EX2-A		II 3G Ex ec [ic] IIC T4 Gc IP65 II 3D Ex tc [ic] IIIC T80°C Dc
Classification Battery TYKR-04-EX2-A		II 3G Ex ic IIC T4 Gc II 3D Ex ic IIIC T80°C Dc
Display	6 LCD digits, digit height 48 mm, backlit	
Resolution (calibratable)	Single (Max.) 3000 e	
	Multi-range/multi-interval (max.) 2x3000 e	
Resolution (non-verified)	100 – 999,999 d	
Calibration class	III	
Weighing ranges	1 or 2	
Resolution	1, 2, 5, 10, n	
Strain gauge load cells	87 / 1227Ω (minimum/maximum resistance)	
Applications	Weighing, counting, checkweighing	
Weighing units	g, kg, lb, pcs, %, FFA	
Permissible Ambient temperature	-10 °C ... + 40 °C	
Battery, permissible temperature range during charging	0 °C ... + 40 °C	
Humidity	max. 80% rel. (non-condensing)	
Power supply	Input voltage 100 ~ 240 VAC; 50 / 60 Hz; 0.12 A Overvoltage category III Mains voltage fluctuations ±10%	
	Alternative battery TYKR-04-EX2-A; 3.7 VDC; 10 Ah	
Battery operation (alternative to mains operation)	Operating time 160 h (backlight off) Operating time 60 h (backlight on) Charging time approx. 6 h	
Dimensions of display unit	252 x 79 x 162.5 (W x D x H) [mm] Dimensions of AC version with star handles, without mounting bracket	
Net weight	Display unit: 3.2 kg; battery 0.85 kg	
Interfaces	RS-232, USB device, Wi-Fi, analogue (0–10 V, 4–20 mA), Ethernet, Bluetooth	
Installation	Up to 2000 m above sea level	
IP rating	Data logger: IP65; Battery: IP65	
Degree of contamination	2	

4 Declaration of Conformity

The current EC/EU Declaration of Conformity can be found online at:

<https://www.kern-sohn.com/shop/de/downloads/>

5 Equipment overview

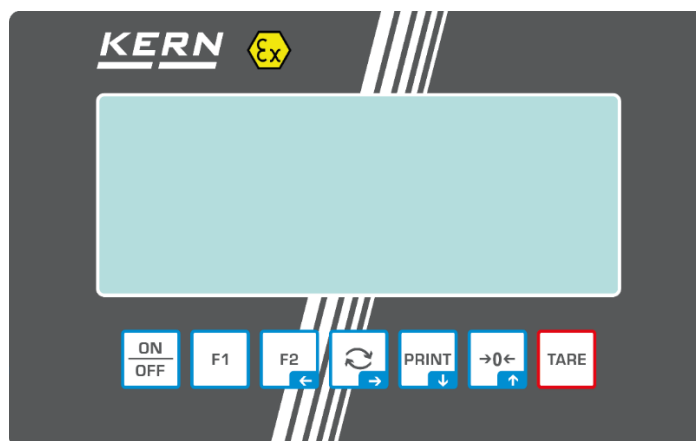
5.1 Components



Item	Description
------	-------------

- | | |
|---|---------|
| 1 | Display |
| 2 | Keypad |

5.2 Controls



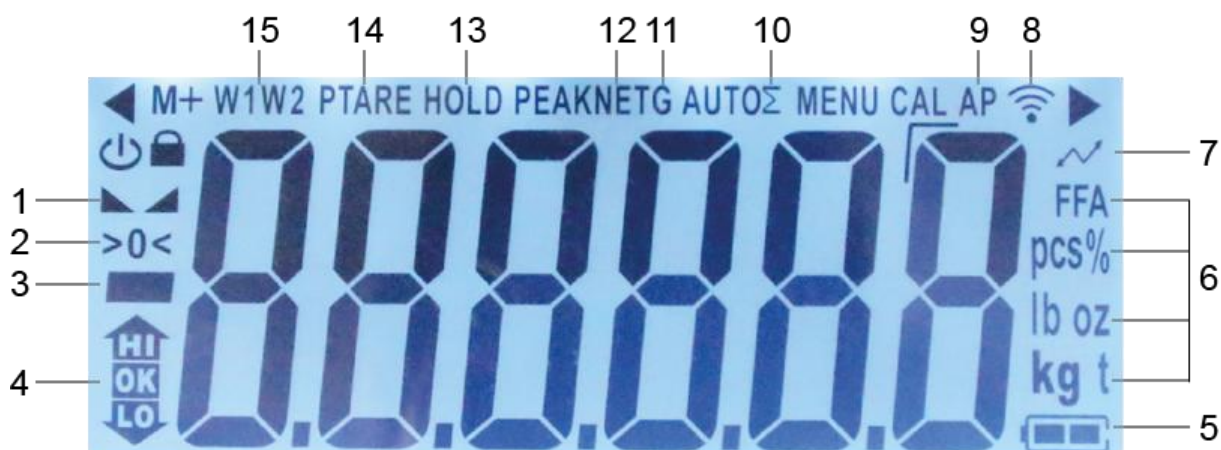
5.2.1 Keyboard overview

Key	Name	Function in operating mode	Function in menu
	[ON/OFF]	➤ Switch on/off (long press) ➤ Switch display backlight on/off (short press) ➤ Open the setup menu (long press together with the TARE button)	
	[F1]	➤ Function key, see section 10.1	
	[F2]	➤ Function key, see chapter 10.1	➤ Navigation key ← ➤ Go back one menu level ➤ Exit menu / return to weighing mode
	[CHANGE]	➤ Change key, see section 10.1	➤ Navigation key → ➤ Activate menu item ➤ Confirm selection
	[PRINT]	➤ Transfer weighing data via interface ➤ Display higher resolution (long press, only on calibrated scales)	➤ Navigation key ↓ ➤ Select menu item
	[ZERO]	➤ Zero	➤ Navigation key ↑ ➤ Select menu item
	[TARE]	➤ Tare ➤ Open application menu (long press) ➤ Open the setup menu (press and hold together with the ON/OFF button)	

5.2.2 Numeric input

Key	Label	Function
	Navigation key [→]	Select a digit Confirm entry. Press the key repeatedly for each digit. Wait until the numeric input window disappears. Long press: Jumps to the last digit of the entry.
	Navigation key [↓]	Decrease flashing digit (0 – 9)
	Navigation key [↑]	Increase the flashing digit (0 – 9)

5.2.3 Display overview



Position	Display	Description
1		Stability indicator
2	>0<	Zero display
3	-	Minus display
4		Tolerance marks in checkweighing
5		Battery charge level indicator
6	Unit display / Pcs / %	selectable g, kg, lb or Application icon [Pcs] for counting pieces or [%] for percentage determination
7		Data transfer in progress
8		Wi-Fi symbol
9	AP	Autoprint active
10	Σ	Weighing data is stored in the total memory
11	G	Display of gross weight value
12	NET	Display of net weight
13	HOLD	Hold/animal weighing function
14	PTARE	Pre-tare function
15	W1W2	Display of active weighing range

6 Basic information

6.1 Intended use

The balance you have purchased is designed to determine the weight of items being weighed. It is intended for use as a 'non-automatic balance', i.e. the item to be weighed is placed manually, carefully and centrally on the weighing pan. Once a stable weight has been reached, the weight can be read.

It can be used indoors and outdoors. If the device is used in a manner not specified by the manufacturer, the protection provided by the device may be compromised.

6.2 Improper use

- Our scales are non-automatic scales and are not intended for use in dynamic weighing processes. However, the scales may also be used for dosing applications following a review of the specific application and accuracy requirements.
- Avoid impacts and overloading the scale beyond the specified maximum load (Max) at all costs. This could damage the scale.
- The balance must not be structurally modified. This can lead to incorrect weighing results, safety defects and the destruction of the balance.
- The balance must only be used in accordance with the specifications provided.

6.3 Warranty

The warranty is void in the event of

- failure to comply with our instructions in the operating manual
- Use outside the described applications
- Modifications to the device or opening of the device
- Mechanical damage and damage caused by media, liquids
natural wear and tear
- Incorrect installation or electrical wiring
- Overloading of the measuring mechanism

6.4 Test equipment monitoring

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

7 Transport and storage

7.1 Inspection on delivery

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

7.2 Packaging/Return



- ⇒ Keep all parts of the original packaging in case return transport is necessary.
- ⇒ Only the original packaging must be used for return transport.
- ⇒ Before dispatch, disconnect all connected cables and remove any loose or movable parts.
- ⇒ Reattach any transport securing devices that may have been provided.
- ⇒ Secure all parts, e.g. the windscreen, weighing pan, power supply unit, etc., to prevent them from slipping or being damaged.

8 Unpacking, installation and commissioning

8.1 Installation site, place of use

The scales are designed to provide reliable weighing results under normal operating conditions.

You will work accurately and quickly if you choose the right location for your balance.

At the installation site, please note the following:

- Place the scale on a stable, level surface.
- Avoid extreme heat and temperature fluctuations, e.g. by placing the scale next to a radiator or in direct sunlight.
- Protect the balance from direct draughts caused by open windows and doors.
- Avoid vibrations during weighing.
- Do not expose the device to high humidity for prolonged periods. Unauthorised condensation (condensation of air humidity on the device) may occur if a cold device is moved into a significantly warmer environment. In this case, allow the device, disconnected from the mains, to acclimatise at room temperature for approx. 2 hours.
- Avoid static charging of the sample and the weighing pan.
- Do not operate in areas where there is a risk of explosion!
- Keep chemicals (e.g. liquids or gases) that could corrode or damage the balance internally or externally away from the instrument.
- In the presence of electromagnetic fields, static charge (e.g. when weighing/counting plastic parts) or an unstable power supply, significant display deviations (incorrect weighing results and damage to the balance) may occur. The location must then be changed or the source of interference eliminated.

8.2 Unpacking and Inspection

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

Scope of delivery / Standard accessories:

- Display unit
- Operating instructions
- Installation instructions

8.3 Mains connection



The scales must only be connected to the mains supply if the specifications on the scales (type plate) and the mains voltage match.



Important:

- Check the mains cable for damage before use.

8.4 battery operation (alternative)

When used correctly, the YKR-04-EX2 battery offers a high level of safety. The battery is housed in an IP65-rated stainless steel casing and encapsulated.

The battery is short-circuit-proof and protected against overcharging.

If the scale is not used for an extended period, disconnect the battery and cover the terminals with the protective caps.

CAUTION	
	⇒ The battery and charger are designed to work together. ⇒ The battery must only be replaced with the same type or one approved by the manufacturer. ⇒ Protect the battery from fire and heat.
	⇒ Do not allow the battery to come into contact with liquids, chemicals or salts. ⇒ Do not expose the battery to high pressure or microwaves. ⇒ Batteries and chargers must not be modified or tampered with under any circumstances. ⇒ Do not use a defective, damaged or deformed battery
	⇒ Do not connect the battery's electrical contacts to metallic objects. ⇒ Liquid may leak from a damaged battery. If the liquid comes into contact with the skin or eyes, it may cause irritation. ⇒ If the battery starts to emit odours, becomes hot, changes colour or becomes misshapen, it must be disconnected from the power supply immediately and, if possible, removed from the scales.

8.4.1 Replacing the battery

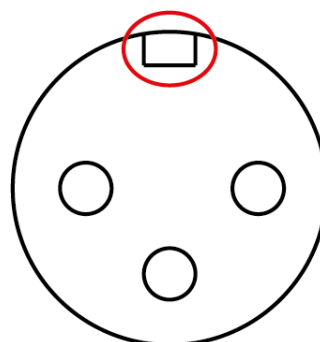
Only change the battery when the device is switched off.

1. Unscrew the cap (blue) and remove the plug



2. Remove the discharged battery from the recess
3. Insert the charged battery into the compartment
4. Insert the plug (ensure the plug tab is in the correct position)

The plug locks into place automatically



8.4.2 Charging the battery

The battery should be fully charged before first use.

To conserve battery power, the automatic switch-off function <AUTOFF> can be activated in the menu (see section 15.3).

When the battery capacity is exhausted, the display shows <LOWBAT>. Disconnect the battery from the analysis unit and connect the battery to the charger in safe area. The charging time until the battery is fully recharged is approx. 6 hours.

Display Charger		No battery connected		Battery is charging		Battery charging

8.4.3 Battery operating times

The YKR-04-EX2 battery has a nominal capacity of 10 Ah.

The display backlight and the optional interfaces have a significant impact on operating times.

This results in the following typical operating times:

Scale configuration	Display backlight	Interfaces	Typical Operating time
Indicator with platform scale and a 350 ohm load cell.	Switched off	None	160 h
	Permanently switched on	None	60 h
	Permanently on	USB and RS232	20 h

The capacity, and therefore the operating time, decreases over the battery's service life.

8.5 Connection of peripheral devices

Peripheral devices must only be connected by qualified personnel in accordance with the KERN KXC-TM-EX2 installation instructions.

8.6 Initial commissioning

To ensure accurate weighing results, we recommend switching on the balance 10 minutes before use.

The accuracy of the balance depends on the local gravitational acceleration.

It is essential to follow the instructions in the Calibration section.

8.7 Adjustment of non-verifiable instruments

As the value of gravitational acceleration is not the same everywhere on Earth, every balance – in accordance with the underlying physical weighing principle – must be adjusted at the installation site to the gravitational acceleration prevailing there (only if the balance has not already been adjusted to the installation site at the factory). This adjustment procedure must be carried out during initial commissioning, after every change of location, and in the event of fluctuations in ambient temperature. To obtain accurate readings, it is also recommended to adjust the balance periodically during weighing operation.



- Provide the required calibration weight; see the configuration overview. The calibration weight to be used depends on the capacity of the balance. Perform calibration as close as possible to the maximum load. Information on test weights can be found online at: <http://www.kern-sohn.com>
- Ensure stable ambient conditions. Switch on the balance at least 10 minutes before calibration.
- Ensure that there are no objects on the weighing platform.
- Avoid vibrations and draughts.
- Only perform calibration with the standard weighing plate in place.

On scales with type approval, calibration is disabled.

To remove the access lock, the seal must be broken and the adjustment switch activated. For the position of the adjustment switch, see section 9 . For adjustment of verifiable instruments, see section 8.8.

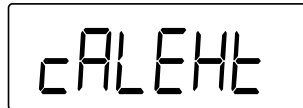
- **Caution:**
After the seal has been broken, the balance must be re-calibrated by an authorised body and a new seal affixed before it may be used again in applications subject to legal metrology requirements.

8.7.1 Perform adjustment using an external calibration weight



⇒ Open the setup menu

⇒ Select <cAL>



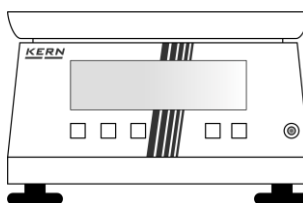
⇒ Select <cALEHT>



⇒ Unload the balance

⇒ The calibration weight to be placed on the balance is displayed

⇒ Prepare the calibration weight (do not place it on the weighing pan yet)



⇒ Press [→]



⇒ The zero adjustment is performed first

⇒ <Zero> is displayed

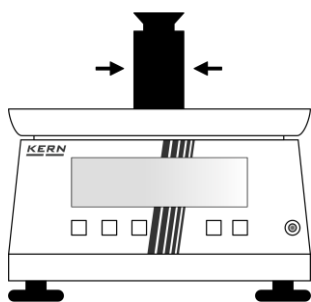


⇒ Ensure that the weighing pan is unloaded and press [→].



⇒ <PULd> followed by the value of the required calibration weight is displayed.

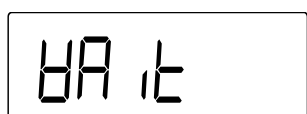




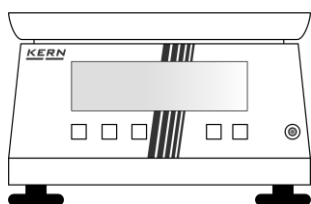
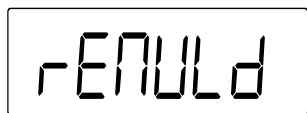
⇒ Place the calibration weight in the centre of the weighing pan



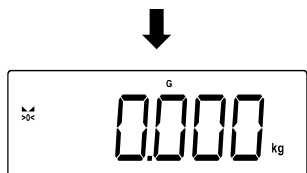
⇒ Press [→]



⇒ Wait until <rENULd> appears on the display



⇒ Remove the load from the balance



⇒ The balance switches to weighing mode

8.7.2 Perform calibration using an external, user-defined calibration weight

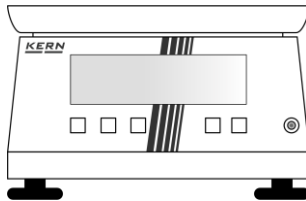


⇒ Open the setup menu

⇒ Select <cAL>



⇒ Select <cALEud>



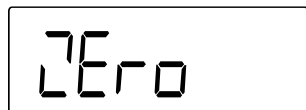
⇒ Unload the balance



⇒ Enter the calibration weight (for numerical input, see the chapter 5.2.2)



⇒ Press [→]



⇒ The zero point adjustment is performed first

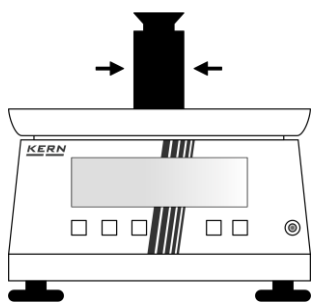
⇒ <2Er0> is displayed



⇒ Ensure that the weighing pan is unloaded and press [→].



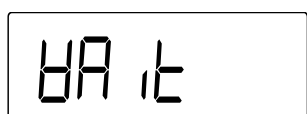
⇒ <PULd> followed by the value of the required calibration weight is displayed.



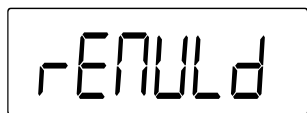
⇒ Place the calibration weight in the centre of the weighing pan



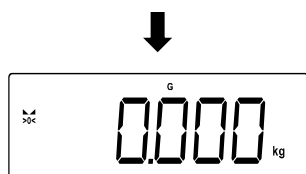
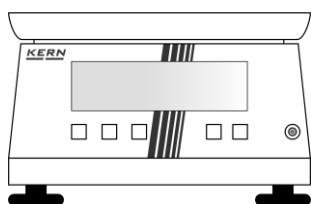
⇒ Press [→]



⇒ Wait until <r ENUL d> appears on the display



⇒ Unload the balance



⇒ The balance switches to weighing mode

8.8 Calibration of verifiable instruments

INFORMATION



To adjust a calibrated instrument, you must:

- the device must be opened
- the verification seal is broken
- the scale is re-calibrated and resealed by an authorised body (e.g. when converting to a different platform).

You will find the relevant information in the KXC-TM-EX2 installation manual

9 Calibration

General:

Under EU Directive 2014/31/EU, scales must be calibrated if they are used as follows (legally regulated area):

- In commercial transactions, where the price of goods is determined by weighing.
- In the manufacture of medicines in pharmacies and in analyses carried out in medical and pharmaceutical laboratories.
- For official purposes
- In the production of prepackaged goods

If in doubt, please contact your local calibration office.

Scales in the legally regulated sector (-> verified scales) must comply with the permissible error limits during the verification validity period – these are generally twice the verification error limits.

If this calibration validity period expires, recalibration must be carried out. Should an adjustment of the balance be necessary to pass this recalibration and to comply with the calibration error limits, this does not constitute a warranty claim.

Calibration notes:

Scales designated as verifiable in the technical data have EU type approval. If the scale is used in the area subject to verification as described above, it must be verified and re-verified at regular intervals.

The re-verification of a scale is carried out in accordance with the relevant legal provisions of the respective countries. In Germany, for example, the period of verification validity for scales is generally 2 years.

The legal requirements of the country of use must be observed!



The calibration of the scale is invalid without the seal marks.

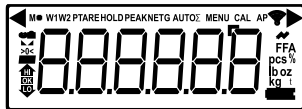
For scales with type approval, the affixed seals indicate that the scale may only be opened and serviced by trained and authorised personnel. If the seals are broken, the calibration validity expires. National laws and regulations must be observed. In Germany, re-calibration is required.

10 Basic operation

10.1 Switch on the



⇒ Press **[ON/OFF]**



⇒ The scale performs a self-test



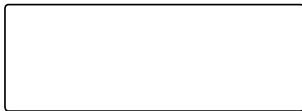
⇒ Wait until the weight display appears.

The scale is now ready for use with the last active application.

10.2 Switching off

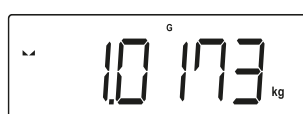
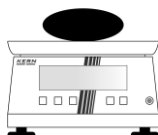


⇒ Hold down **[ON/OFF]**



⇒ The scales switch off

10.3 Simple weighing



⇒ Check the zero display (>0<) and, if necessary, zero the scale using [ZERO].

⇒ Place the item to be weighed on the weighing platform.

⇒ The weight value and stability indicator (▴▴) appear.

⇒ The result can be read.



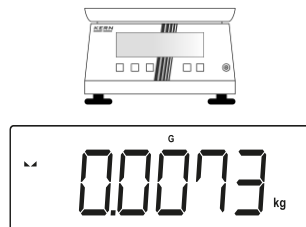
overload warning: Under no circumstances should the device be overloaded beyond the specified maximum load (Max), minus any existing tare weight. This could damage the instrument. Exceeding the maximum load is indicated by the display $\overline{\text{---}}$. Unload the balance or reduce the preload.

10.4 Tare

To achieve optimum weighing results, zero the balance before weighing.

Zeroing is only possible within the range of $\pm 2\%$ Max.

For values greater than $\pm 2\%$ Max., the error message $\langle \text{L} \text{ } \text{H} \text{ } \text{L} \rangle$ appears



⇒ Remove the load from the balance.



⇒ Press **[ZERO]**.

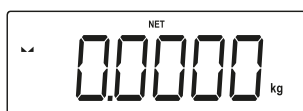
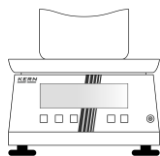


⇒ Zero and the zero display (**>0<**) are shown.

⇒ The balance is set to zero.

10.5 Tare

Tare:



⇒ Place the empty container on the weighing platform.

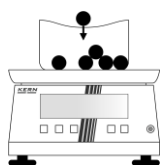
⇒ The weight of the container and the stability indicator (▲▲) are displayed.

⇒ Press [TARE].

⇒ The zero display and the 'Net weight' indicator (**NET**) are displayed (**NET** indicates that all displayed weight values are net values).

⇒ The weight of the container is saved as the tare.

Weighing with tare:



⇒ Place the item to be weighed into the container.

⇒ The weight value and stability indicator (▲▲) are displayed.

⇒ The result can be read.



- When the balance is unloaded, the stored tare value is displayed with a negative sign.
- To clear the stored tare value, remove the load from the weighing pan and press [TARE] or [ZERO].
- The taring process can be repeated as many times as required, for example when weighing in several components to make a mixture (additional weighing). The limit is reached when the taring range is fully utilised.
- Numerical entry of the tare weight is possible (PRE-TARE)

10.1 Quick function key assignments (default settings)

The following buttons can be assigned various functions.

The following functions are set as standard for the various applications:

	Short press	Long press
WE iH	➤ When pressed for the first time: Set weighing unit ➤ Switch between weighing units	➤ Display gross weight ➤ After taring: Display tare weight
count	➤ When pressed for the first time: Set reference quantity ➤ Switch between weighing units	➤ Display gross weight or gross count ➤ After taring: Display tare weight or tare count
chEcH	➤ When pressed for the first time: Set weighing unit ➤ Switch between weighing units	➤ Switch the display between gross, net and tare weight (after taring)

	Short press	Long press
WE iH	➤ Execute HOLD function	➤ Select weighing application
count	➤ Set reference quantity	➤ Open checkweighing settings
chEcH	➤ Open checkweighing settings	➤ Select weighing application

	Short press	Long press
tArE	➤ Open pre-tare settings	➤ Set weighing unit
count		
chEcH		

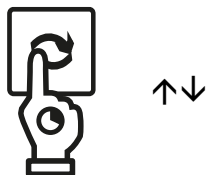
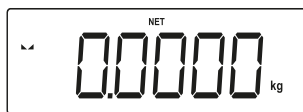
i Further setting options can be found in the setup menu under <button>, see section 15.3.

10.1.1 Switching the weighing unit

By default, **[CHANGE]** is set so that you can switch between weighing units by **briefly** pressing the key. For further information, see the chapter 12.4.1.

10.1.2 Displaying the gross weight

By default, the **[CHANGE]** button is set so that pressing **and holding** it displays the gross weight.



⇒ Hold down **[CHANGE]** until the display shows the gross weight.

⇒ After releasing the key, the gross weight value remains on the display for approximately 5 seconds.



10.1.3 Open PRE-Tare settings

By default, **[F2]** is set so that a **short** press of the key calls up the **< PRE-TARE >** menu setting. For further settings, see section 12.2 .

10.1.4 Executing the Data Hold function

By default, **[F1]** is set so that a **long** press executes the Data Hold function **< HOLD >**, see section 12.3 .

11 Operating concept

The balance is supplied from the factory with various applications (Weighing, Checkweighing, Counting). After switching on for the first time, the balance is in the <Weighing> application.

However, in **the application menu** (see section 15.2.), you can select an application to specify the mode in which the balance should continue to operate after switching on. Either in weighing mode by default, or, for example, in checkweighing mode or counting mode.

Selecting an application:



⇒ Hold down **[TARE]** until <APcNEr> is displayed.



⇒ The display switches to show the currently active application followed by the first menu item (in the example, the <Weighing> application menu).

⇒ Select <NodE> using **[↓]** or **[↑]** and confirm with **[→]**.

count



chEcf

⇒ The application selection opens. The next selectable application is displayed (the currently active application is not displayed).

⇒ Select the desired application using [↓] or [↑] and confirm with [→].

<H E i h>	Weighing
<count>	Count
<chEcf>	Tolerance weighing

Depending on the selected application, only the application-specific settings are displayed in the application menu, so you can get straight to the point.



- Information on the application-specific settings can be found in the description of the respective application.
- All basic settings and parameters that affect the overall operation of the balance are summarised in **the Setup menu** (see chapter 15.3).
These settings apply to all applications.
- The number of available applications depends on the model.

Changing the application:

- ⇒ Press and hold [TARE] until the first menu item in the application menu is displayed
- ⇒ Use [↓] to select the menu setting <Mode> and confirm with [→].
- ⇒ Use [↓] to select the desired application and confirm with [→].

12 <Weighing> application

The procedure for simple weighing and taring is described in sections 10.3 and 10.5. Further specific setting options can be found in the following sections.

i If the <Weighing> application is not already active, select the menu setting <MODE> → <WEIGH>, see chapter 11

12.1 Application-specific settings

To access the menu:

- ⇒ Press and hold **[TARE]** until <APCERN> is displayed.
- ⇒ The display changes to <WEIGHMOD> followed by <PRE-TARE>.
- ⇒ For menu navigation, see the 15.1

Overview (non-calibratable models):

Level 1	Level 2	Level 3	Description / Chapter
PRE-TARE PRE-TARE	RECALL	Recall the last stored tare weight (only displayed if a value is stored in the tare memory)	
	ACTUAL	Accept the applied weight as the PRE-TARE value, see chapter 12.2.1	
	NUMERICAL	Enter tare weight numerically, see chapter 12.2.2	
	CLEAR	Delete PRE-TARE value	
hold	-	Start hold function, see section 12.3	
unit Units	Available weighing units, see chapter 1	This function determines the weighing unit in which the result is displayed, see section 12.4.1	
	FFA	Multiplication factor, see chapter 12.4.2	
	%	Application unit for percentage determination, see chapter 12.4.3	
MODE Applications	count	Counting	See chapter 11
	check	Checkweighing	

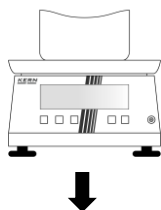
Overview (calibratable models):

Level 1	Level 2	Level 3	Description / Chapter
P RE T ARE PRE-TARE	r EC ALL	Recall the last stored tare weight (only displayed if a value is stored in the tare memory)	
	A CT UAL	Accept the applied weight as the PRE-TARE value, see chapter 12.2.1	
	N UM AL	Enter tare weight numerically, see chapter 12.2.2	
	c LE Ar	Delete PRE-TARE value	
h OL d	-	Start hold function, see section 12.3	
u N it Units	kg	This function determines the unit of measurement in which the result is displayed; see section 12.4.1	
	g		
M OD E Applications	c OUN t	Count	see chap. 11 Fehler! Verweisquelle konnte nicht gefunden werden.
	c H E C k	Checkweighing	

12.2 PRE-Tare

12.2.1 Accept the applied weight as the PRE-TARE value

<PTARE> → <ACTUAL>



⇒ Place an empty container on the weighing platform.

PTARE

⇒ Open the application menu and select <PTARE>. Confirm with [→].

ACTUAL

⇒ Select <ACTUAL> and confirm with [→].

BAIT

⇒ <BAIT> is displayed.

PTARE NET
0.0000 kg

⇒ Zero display and the **NET** and **PTARE** indicators are displayed.

⇒ The weight of the container is saved as the tare.

i The entered tare weight remains valid until a new tare weight is entered. To delete, press **[TARE]** or confirm the menu setting <CLEAR> with [→].

12.2.2 Enter the known tare weight numerically

<PTARE> → <NORMAL>

Note: The entry is made in the currently displayed unit.



⇒ Open the application menu and select <PTARE>. Confirm by pressing [→].



⇒ Select <NORMAL> and confirm with [→].



⇒ The display switches to numerical input (see section 5.2.2).
The active digit flashes.



⇒ Enter the tare weight.



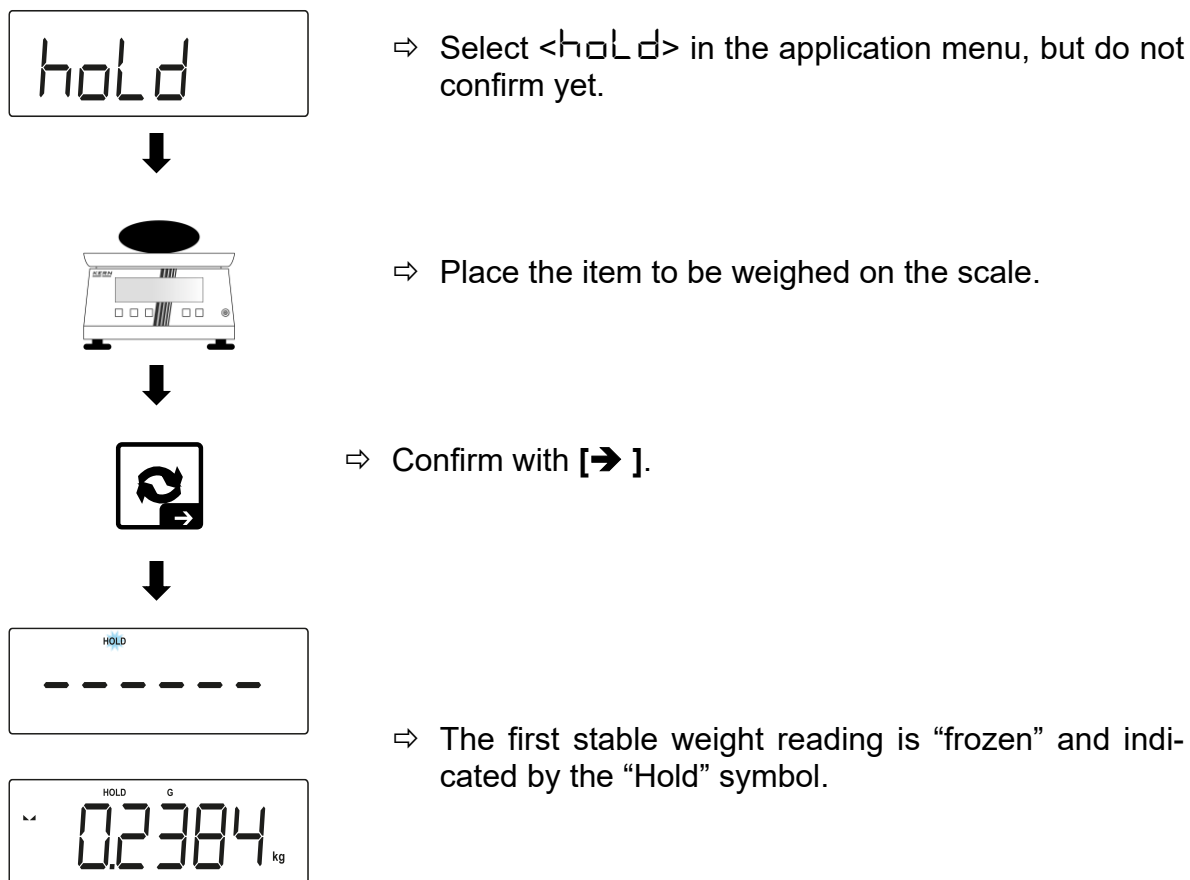
⇒ The **NET** and **PTARE** indicators are displayed.
⇒ The tare weight is saved and displayed as a negative value.
⇒ The weighing process can now be carried out with the appropriate container.



The entered tare weight remains valid until a new tare weight is entered. To delete, press **[TARE]** or confirm the menu setting <CLEAR> with [→].

12.3 Data-Hold function

The hold function allows the displayed weight value to be "frozen". After the scale is unloaded, the value remains visible on the display for 10 seconds.



12.4 Weighing units

12.4.1 Setting the weighing unit

Activating the unit:

Press **[CHANGE]** briefly for the first time to set the unit for quick selection.



⇒ Press **[CHANGE]**.

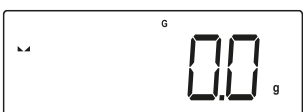


⇒ The display switches to the unit selection.

⇒ The unit flashes.



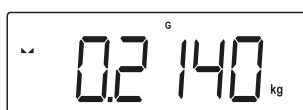
⇒ Select the unit using **[↓]** or **[↑]** and confirm with **[→]**.



⇒ The unit stops flashing.

⇒ The display switches to operating mode.

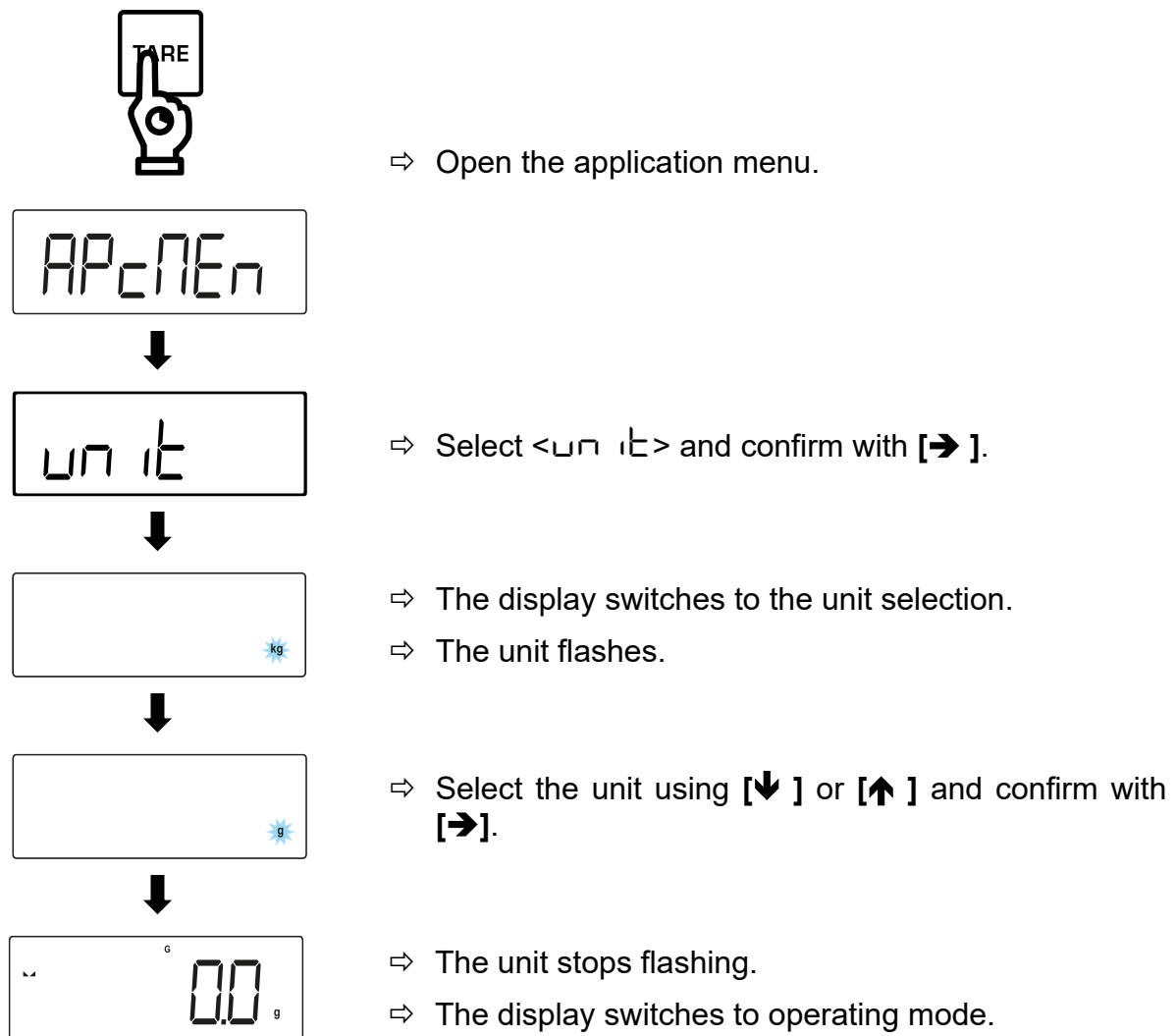
To switch the unit:



⇒ Press **[CHANGE]** to switch the unit.



To activate a different unit:

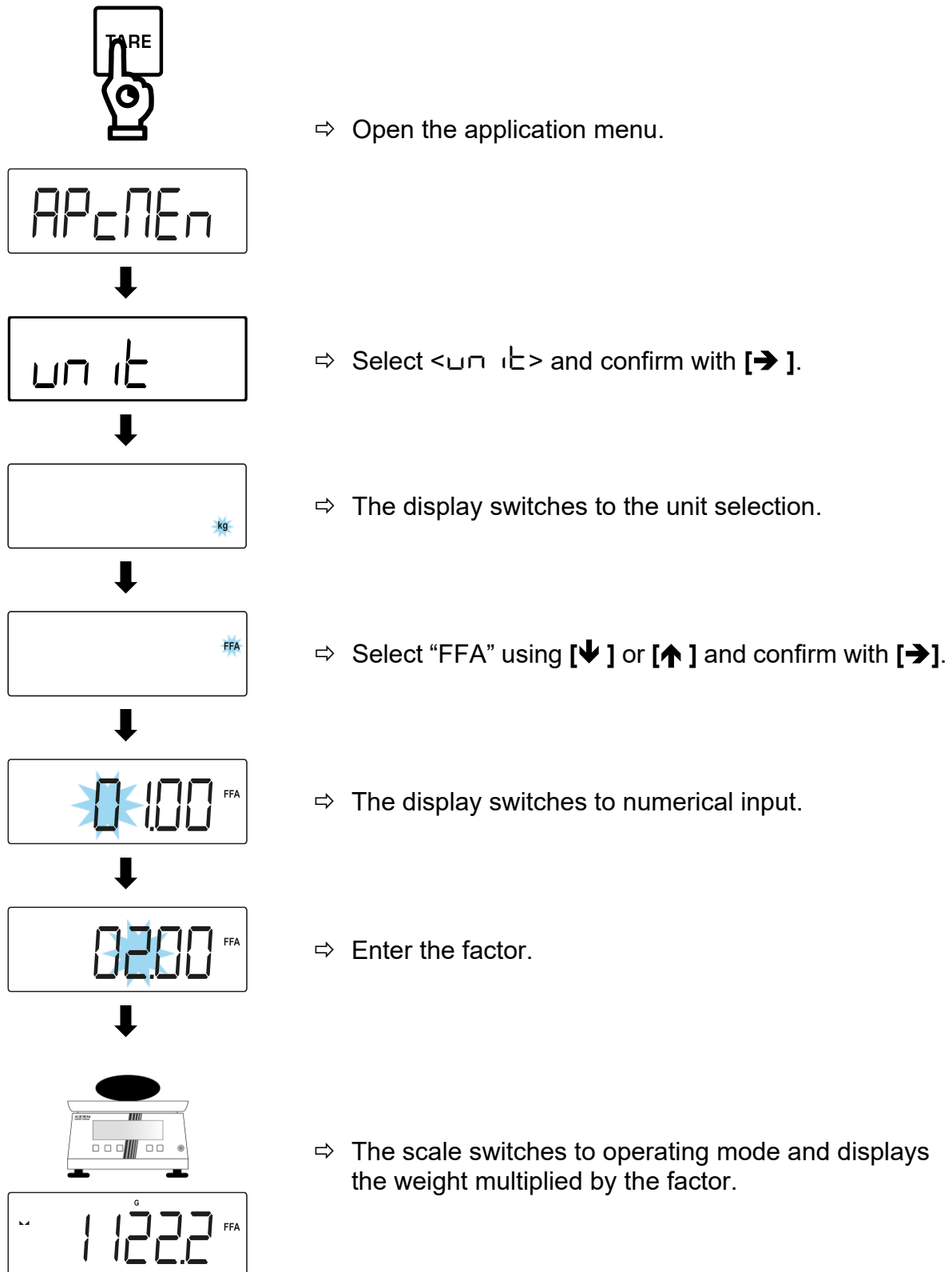


i The required settings when selecting an application unit (% , FFA) can be found in sections 12.4.2 and 12.4.3 .

12.4.2 Weighing with a multiplication factor via application unit <FFA>

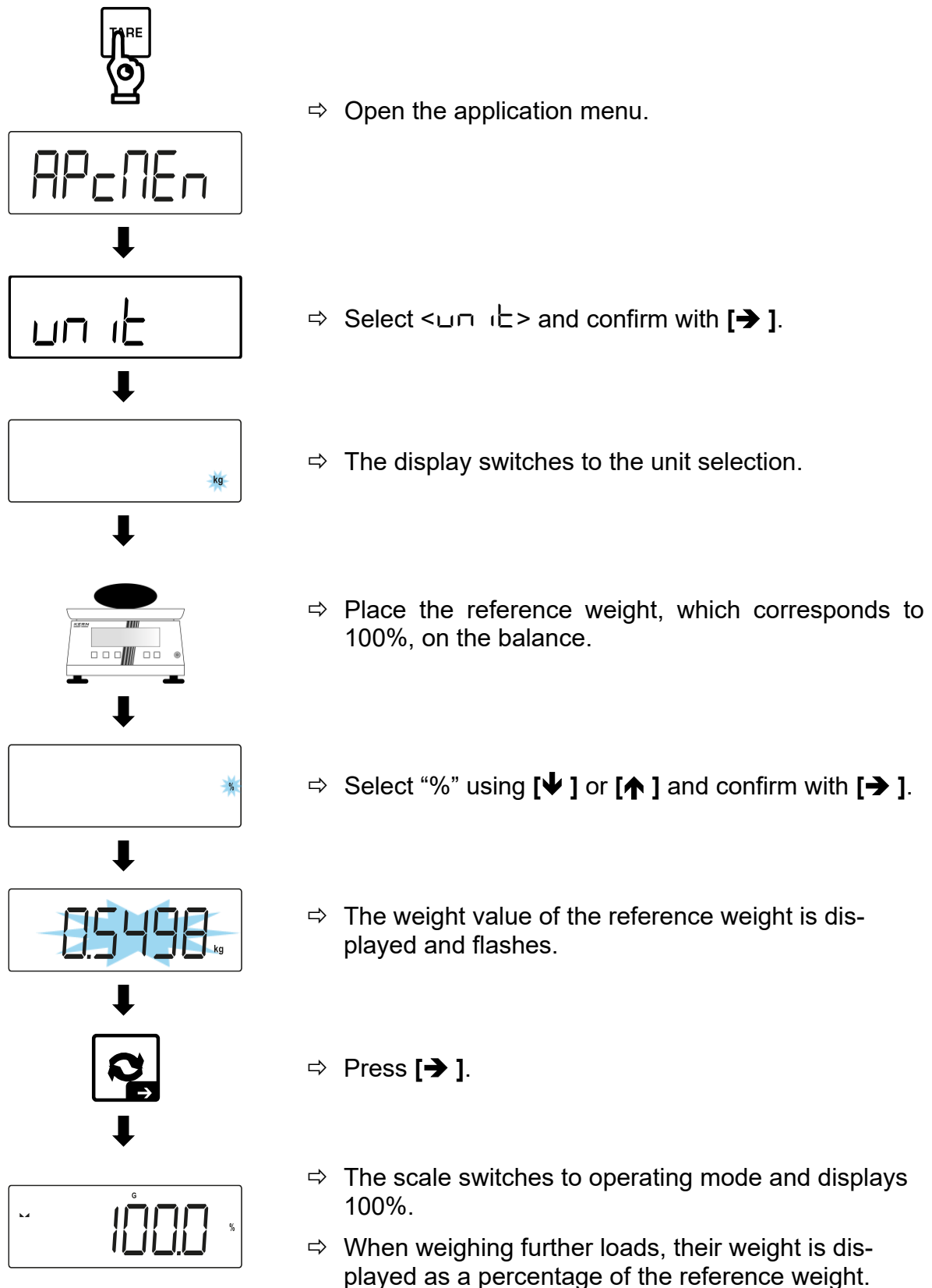
Here you specify the factor by which the weighing result (in grams) is multiplied.

This allows, for example, a known error factor to be taken into account immediately when determining the weight.



12.4.3 Percentage weighing via the <%> application unit

The application unit <%> allows you to check the weight of a sample as a percentage relative to a reference weight.



13 <Counting> application



If the <Count> application is not already active, select the menu setting <MODE> ➔ <COUNT>, see chapter 11

13.1 Application-specific settings

To access the menu:

- ⇒ Press and hold **[TARE]** until <APCPEH> is displayed.
- ⇒ The display changes to <COUNT> followed by <REF>.
- ⇒ Navigating the menu, see chapter 15.1

Overview:

Level 1	Level 2	Level 3	Description / Chapter
REF Reference quantity	5	Reference quantity 5	
	10	Reference quantity 10	
	20	Reference quantity 20	
	50	Reference quantity 50	
	FREE	Freely selectable, numerical input – see section 5.2.2	
	input	Input unit weight, numerical input, see section 5.2.2	
PRE-TARE PRE-TARE	RECALL	Recall the last stored tare weight	
	ACCEPT	Accept the applied weight as the PRE-TARE value, see chapter 12.2.1	
	NUMAL	Enter tare weight numerically, see chapter 12.2.2	
	CLEAR	Delete PRE-TARE value	
CHECK	TYPE	ABS	Check quantity (limit values)
		REL	Weigh target quantity (deviations)
	For <TYPE> = <ABS>		
	L UP	Upper limit	
	L LOW	Lower limit	
	For <TYPE> = <REL>		
	VALUE	Target quantity	
	ERRUP	Upper tolerance	
	ERRLOW	Lower tolerance	
	NOB IN	Define the range that is not taken into account in the tolerance evaluation.	

Level 1	Level 2	Level 3	Description / Chapter
	bEEPER	ch-OF (Value within tolerances / limit values)	Sound when tolerance is exceeded
		ch-Lo (Below lower tolerance / below lower limit)	• OFF: No sound • SL08: slow beep • SLd: normal beep • FASt: fast beep • CONT: Continuous tone
		ch-HI (Upper tolerance / upper limit exceeded)	
	RESET	Reset values	
UNIT	Set weighing unit		
MODE Applications	check	Checkweighing	see chap. 11
	WEIGH	Weighing	

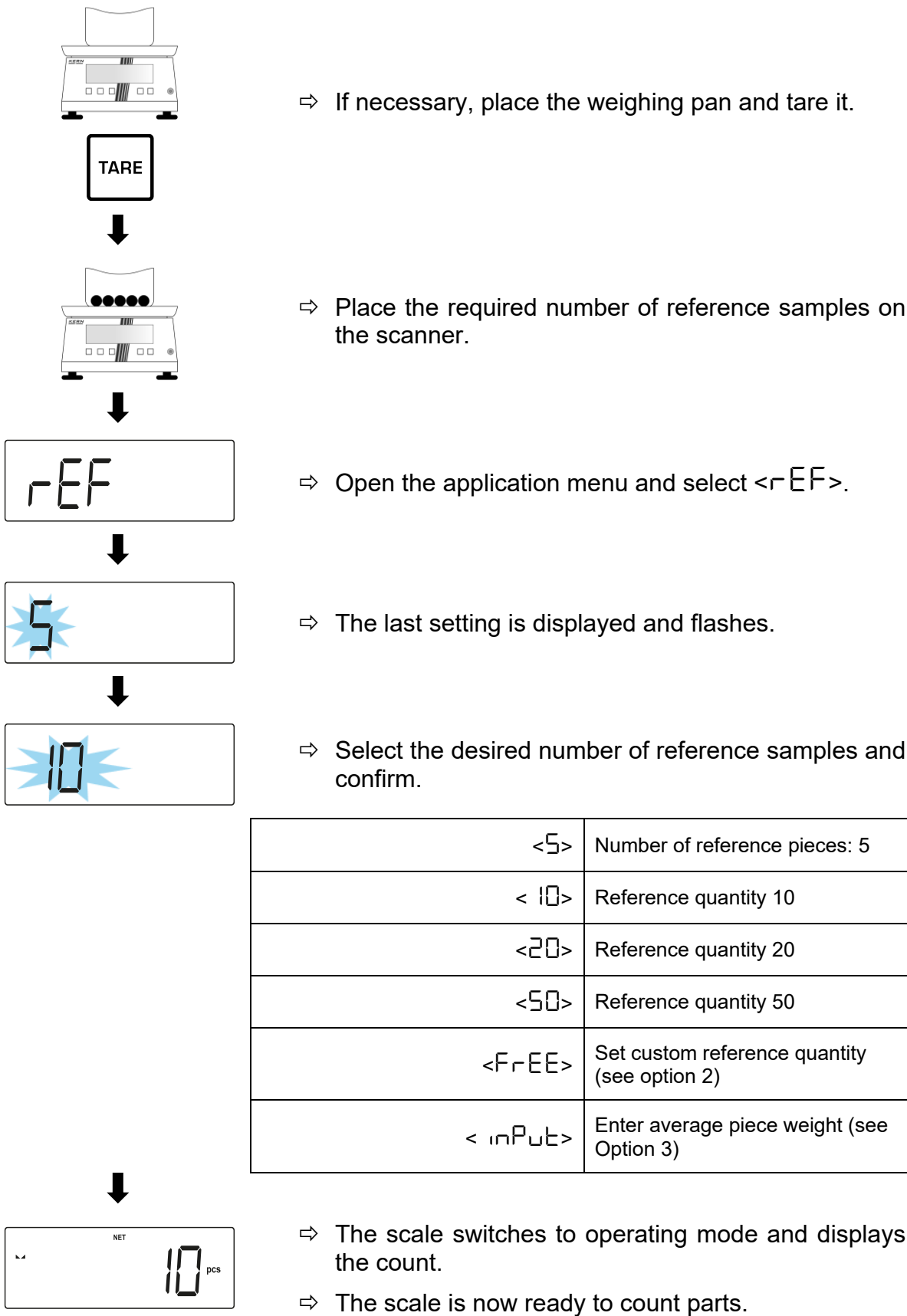
13.2 Setting the reference count

Before the scale can count parts, it must know the average unit weight, known as the reference. To do this, a specific number of the parts to be counted must be placed on the scale. The scale determines the total weight and divides it by the number of parts, known as the reference count. The counting is then carried out on the basis of the calculated average unit weight.

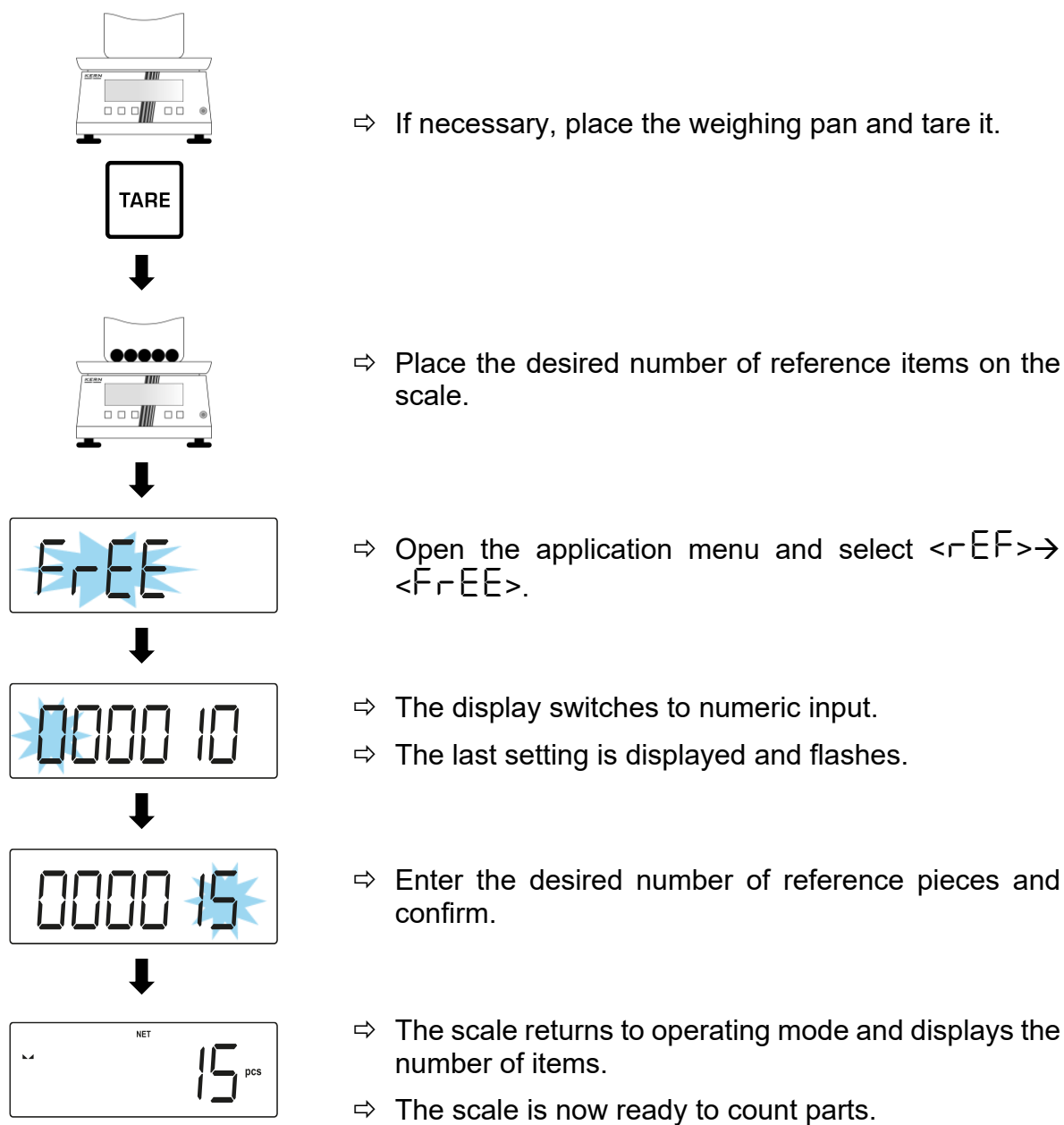


- The higher the reference count, the greater the counting accuracy.
- For small parts or parts that vary greatly in size, the reference must be set particularly high.
- For the minimum counting weight, see the 'Technical Data' table.

Option 1: Select a specified reference count



Option 2: Set custom reference count



Option 3: Enter average piece weight



⇒ Open the application menu and select <rEF>→ < inPUt>.



⇒ The display switches to the weighing unit setting.



⇒ Select the weighing unit and confirm.



⇒ The display switches to the decimal place setting.



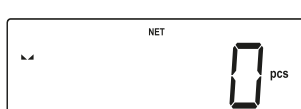
⇒ Select the decimal place and confirm.



⇒ The display switches to numerical input.



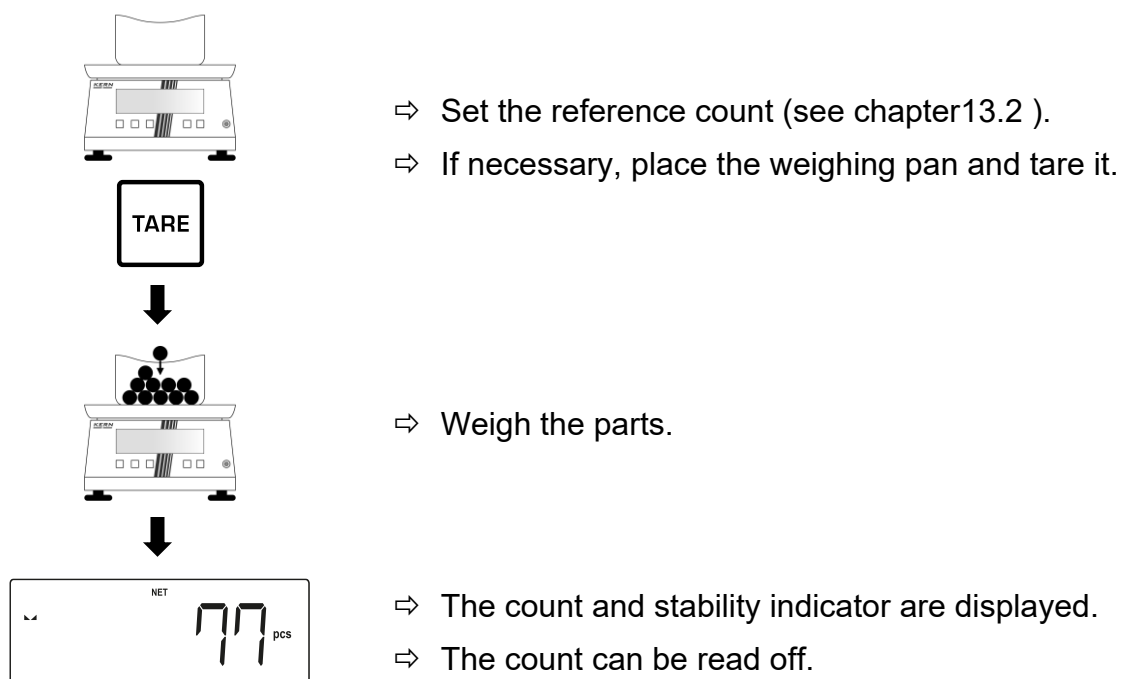
⇒ Enter the unit weight and confirm.



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

⇒ The scale is ready to count parts.

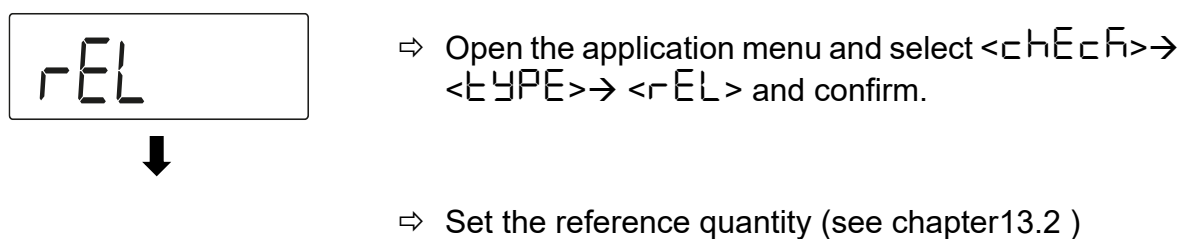
13.3 Performing a simple piece count



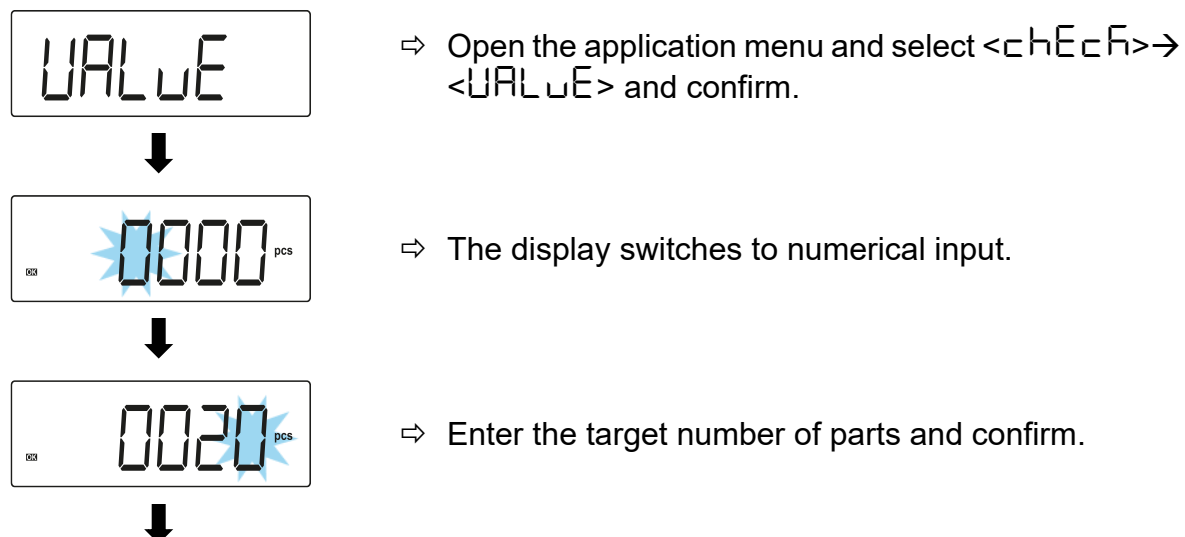
13.4 Target count weighing

This application mode allows you to weigh goods to a specific target count within defined tolerance limits.

Select application mode



Set target count and tolerances



VALUE



ErruPP



ErruPP pcs



0000 pcs



00 10 pcs



ErruPP



ErrLoB



ErrLoB pcs



0000 pcs



0000 pcs



⇒ The display changes to <VALUE>

⇒ Select <ErruPP> and confirm.

⇒ The display switches to unit selection.

⇒ Select the desired unit and confirm.

⇒ The display switches to numerical input.

⇒ Enter the upper tolerance and confirm.

⇒ The display switches to <ErruPP>

⇒ Select <ErrLoB> and confirm.

⇒ The display switches to unit selection.

⇒ Select the desired unit and confirm.

⇒ The display switches to numerical input.

⇒ Enter the lower tolerance and confirm.

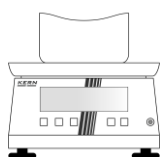
ErrLoB

⇒ The display switches to <ErrLoB>



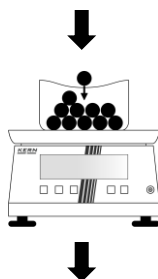
⇒ Press [**←**] repeatedly to exit the menu.

Weigh the target quantity



TARE

⇒ If necessary, place the weighing container on the scale and tare it.



⇒ Weigh the parts.

NET 77 pcs

⇒ The number of pieces, stability indicator and tolerance marks are displayed.

⇒ The result can be read.

Tolerance mark	Description
	Target count exceeded
	Count within tolerances
	Target count not reached



- 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 <ctHcF> → <rE5Et>.

13.5 Checking the number of items

This application mode allows you to weigh goods within a specific quantity range (upper and lower limits).

Select application mode



⇒ Open the application menu and select <CHCF>→ <TYPE>→ <Abs> and confirm.



⇒ Set the reference quantity (see chapter 13.2)



Enter upper limit



⇒ Open the application menu and select <CHCF>→ <L nUPP> and confirm.



⇒ The display switches to numerical input.



⇒ Enter the upper limit value and confirm.



⇒ The display changes to <L nUPP>



Enter upper limit



⇒ Select <L nLoB> and confirm.



⇒ The display switches to numeric input.





⇒ Enter the lower limit value and confirm.



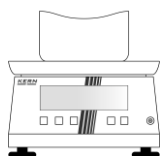
⇒ Display changes to <L 17L08>



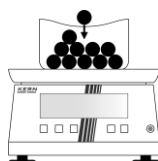
⇒ Press [←] repeatedly to exit the menu.



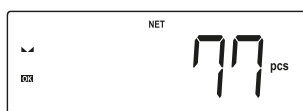
Check the quantity



⇒ If necessary, place the weighing container on the scales and tare it.



⇒ Weigh the parts.



⇒ The number of pieces, stability indicator and tolerance marks are displayed.

⇒ The result can be read.

Tolerance mark	Description
	Upper limit exceeded
	Count within limits
	Below lower limit

i

- 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 <E<F>→ <E<E>.

14 Application < Tolerance Weighing >



If the <Tolerance Weighing> application is not already active, select the menu setting <MODE> → <CHECK>, see chapter 11

14.1 Application-specific settings

To access the menu:

- ⇒ Press and hold **[TARE]** until <APCERN> is displayed.
- ⇒ The display changes to <CHECKMOD> followed by <LIMITS>.
- ⇒ Navigating the menu, see chapter 15.1

Overview:

Level 1	Level 2	Level 3	Description / Chapter
CHECK	TYPE	ABS	Check quantity (limit values)
		REL	Weigh target quantity (deviations)
	For <TYPE> = <ABS>		
	LIMUPP	Upper limit	
	LIMLOW	Lower limit	
	For <TYPE> = <REL>		
	TARGET	Target quantity	
	ERRUPP	Upper tolerance	
	ERRLOW	Lower tolerance	
	NO RANGE	Define the range that is not taken into account in the tolerance evaluation.	
PRE-TARE	RECALL	Recall the last stored tare weight	
	ACTUAL	Accept the applied weight as the PRE-TARE value, see chapter 12.2.1	
	NUMERICAL	Enter tare weight numerically, see chapter 12.2.2	
	CLEAR	Delete PRE-TARE value	

Level 1	Level 2	Level 3	Description / Chapter
	bEEPER	ch-OF (Value within tolerances / limit values)	Sound when tolerance is exceeded - oFF: No sound - SLoB: slow beep - SLd: normal beep - FASt: fast beep - coNt: Continuous tone
		ch-Lo (Lower tolerance / below lower limit)	
		ch-hi (Upper tolerance / upper limit exceeded)	
	rESEt	Reset values	
uN it	Set the weighing unit		
ModE Applications	coUNT	Counting	see chap. 11
	Wt itE	Weighing	

14.2 Weighing to a target weight

This application mode allows you to weigh goods to a specific target weight within defined tolerance limits.

Select application mode



⇒ Open the application menu and select <CH-OF>→ <TYPE>→ <rEL>, then confirm.



Enter target weight

Note: The target weight is entered in the unit previously displayed.



⇒ Open the application menu and select <CH-OF>→ <VALUE> and confirm.



⇒ The display switches to numeric input.



⇒ Enter the target weight and confirm.



UAlUE

⇒ The display changes to <UAlUE>



ErruPP

⇒ Select <ErruPP> and confirm.



ErruPP 

⇒ The display switches to unit selection.

⇒ Select the desired unit and confirm.



 00000 

⇒ The display switches to numerical input.



 0087.2 

⇒ Enter the upper tolerance and confirm.



ErruPP

⇒ The display switches to <ErruPP>



ErrLoB

⇒ Select <ErrLoB> and confirm.



ErrLoB 

⇒ The display switches to unit selection.

⇒ Select the desired unit and confirm.



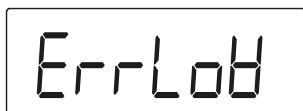
 00000 

⇒ The display switches to numerical input.





⇒ Enter the lower tolerance and confirm.



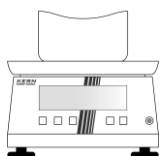
⇒ The display switches to <ErrLoB>



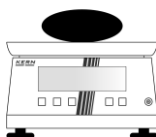
⇒ Press [←] repeatedly to exit the menu.



Weigh the target weight



⇒ If necessary, place the weighing pan and tare.



⇒ Weigh the sample.



⇒ The weight, stability indicator and tolerance marks are displayed.

⇒ The result can be read.

Tolerance mark	Description
HI	Target weight exceeded
OK	Weight within tolerances
LO	Weight below target

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

14.3 Checkweighing

This application mode allows you to weigh goods within a specific weight range (upper and lower limits).

i Note: The limit values are entered in the unit previously displayed.

Select application mode



⇒ Open the application menu and select <CHECK>→ <TYPE>→ <Abs> and confirm.



Enter upper limit



⇒ Open the application menu and select <CHECK>→ <L uPP> and confirm.



⇒ The display switches to numeric input.



⇒ Enter the upper limit value and confirm.



⇒ The display changes to <L uPP>



Enter upper limit



⇒ Select <L 100.0> and confirm.



⇒ The display switches to numeric input.



⇒ Enter the lower limit value and confirm.



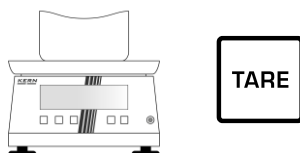
⇒ Display changes to <L 100.0>



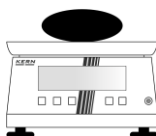
⇒ Press [] repeatedly to exit the menu.



Check the number of items



⇒ If necessary, place the weighing pan and tare.



⇒ Weigh the sample.



⇒ The weight, stability indicator and tolerance marks are displayed.

⇒ The result can be read.

Tolerance mark	Description
	Upper limit exceeded
	Quantity within the limits
	Below lower limit

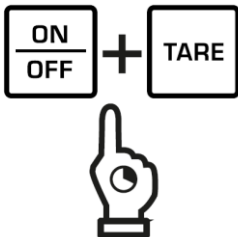
i

- In addition to the tolerance limits, an audible signal can also be set to check the limits. Further information on this can be found in the application menu.
- To delete the values, proceed as follows:
Open the application menu and select `<H E C F> → < r E L E t >`.

15 Menu

15.1 Navigating the menu

Accessing the menu:

Application menu	Setup menu
 Press and hold [TARE] until the first menu item is displayed	 Press and hold [TARE] and [ON/OFF] simultaneously until the first menu item is displayed

Select and set parameters:

Scrolling within a level	Use the navigation keys to select the individual menu blocks in sequence. Use the navigation key ↓ to scroll forwards Use the navigation key ↑ to scroll backwards.
Activate menu item / Confirm selection	Press the navigation key →
Go back one menu level / return to weighing mode	Press the navigation key ←

15.2 Application menu

The application menu allows you to access the selected application quickly and directly (see Chapter 11).



You will find an overview of the application-specific settings in the description of the respective application.

15.3 Setup menu

The Setup menu consists of several menu levels. The settings apply globally to all applications (except <bUttOn>).

Level 1	Level 2	Further levels / Description	
		Description	
<cAL> Calibration (disabled on calibrated devices)	<cALEHt>	➔ External adjustment, see chapter 8.7.1	
	<cALEud>	➔ External adjustment, user-defined, see chapter 8.7.2	
<cOn> Communication	<r5232> ⬆ <u5b-d>	<bAud> Baud rate	• <600> • <1200> • <2400> • <4800> • <9600> • <14400> • <19200> • <38400> • <57600> • <115200> • <230400>
		<dAtA> Number of data bits	• <7db 15> • <8db 15>
		<PAR 15> Parity	• <nonE> None • <odd> Odd • <EUEr> Even • <5PAcE> Space • <PARh> Filler character
		<5toP> Number of stop bits	• <15b 15> • <25b 15>
		<hAndsh> Handshake	<nonE>
		<Protoc> Communication protocol	<HcP>
	<LAN>	<IP-Adr>	Show current IP address
		<SubnN>	Show current subnet mask
		<GtWAY>	Display current gateway address
		<rE5Et>	Reset
	<WLAN>	• <on> Enable WiFi • <off> Disable WiFi	

Level 1	Level 2	Further levels / Description			
		Description			
<Pr int> Data output	< intFcE> Select output interface (only available options are displayed)	<r5232> RS232 <usb-d> USB-D <AnA-oP> Analogue <WLAN> WiFi <LAN> Ethernet <BLE> Bluetooth			
	<sum>	Sum function, see chapter 16.3.1			
	<PrNode>	<trig>	<MANUAL>	Manual data output, see chapter 16.3.2	
			<AutoPr>	Automatic data output, see chapter 16.3.3	
			<cont>	Continuous data output, see chapter 16.3.4	
		<HEight>	<SGLPrt>	Standard output format (weight value only)	
			<GntPrt>	Set output format, see chapter 16.4	
		<LAYOUT>	<none> Default layout	<on> Enable <off> deactivate	
			<user> Custom layout	<Model>	Model designation of the scale
				<SERIAL>	Serial number of the scale
				The following levels are only available on devices with an alibi memory	
				<ALID>	Alibi ID
				<DATE>	Date
				<TIME>	Time
				Settings: <on> Output <off> Do not output	
			<GLP> GLP-compliant weighing report	<on> activate <off> deactivate	
		<reset>	<no> Cancel, do not delete settings <yes> Delete settings		

Level 1	Level 2	Further levels / Description	
		Description	
<KEYton> Key tone	• <on> • <off>	Enable key tone Disable key tone	
<AutoFF> Automatic switch-off function	<Node> Sleep mode	• <off> • <Auto> • <only0>	Automatic switch-off function disabled Automatic shutdown after the time set under <time> without load change Automatic switch-off only when the display shows zero
	<time> Shutdown time	• <30s> • <1min> • <2min> • <5min> • <30min> • <60min>	
<Autoon> Automatic switch-on function when connected to the mains	• <on> • <off>	Switch the device on automatically after connecting to the mains Deactivate automatic switch-on function	
<button> Key assignment	Button label (e.g. <CHANGE> for [CHANGE]) The buttons displayed depend on the device	<PUSH> Short press	• <toggle> Switch displayed unit • <unit> Set weighing unit • <hold> Display gross and tare values • <hold> Execute hold function (only displayed when the "Weighing" application is active) • <Node> Change application • <PreTare> Open pre-tare settings • <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 count (only displayed when the "Counting" application is active) • <off> Button disabled
		<LPUSH> Long press	

Level 1	Level 2	Further levels / Description	
		Description	
<bL iGht> Backlight	<ModE> Lighting mode	• <ALWAYs> Backlight always on • <t iNEr> Automatic switch-off of the backlight after the time set under <t iNE> without load change • <nobl> No backlight	
	<t iNE> Illumination time	• <30s> • < 1n n> • <2n n> • <5n n> • <30 n n>	
<Ar iEr> Calibration range (disabled on calibrated devices)	< 10%> ⇕ < 100%>	This setting allows the maximum tare range to be defined between 10% and 100% (default setting = 99%). To set this, enter the tare range numerically	
<ZL n iE> Zero range (disabled on calibrated instruments)	< 1%> ⇕ < 100%>	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.	
<ZErAcH> Automatic zero tracking (disabled on calibrated devices)	• <ON> • <OFF>	Automatic zero tracking (<= 3d) enabled Automatic zero tracking deactivated Note: 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 operations with small weight fluctuations.	
<F iLEEr> Display speed (disabled on calibrated instruments)	<0> ⇕ < 100>	This setting allows the display speed to be set between 0 and 100 (0 = very fast for quiet environments, 100 = very slow for noisy environments). The filter is entered numerically to set this.	

Level 1	Level 2	Further levels / Description
		Description
<ᐃᐱᑦ ᐱᑦ> Date and time (only for devices with al- ibi memory)	<ᑭᑦᑦ> Set date and time	⇒ The date and time are displayed in sequence. As soon as the display stops at the time, this must be confirmed by pressing [→]. ⇒ The numeric input screen appears. ⇒ Enter data: ○ <ᑭᑭ>: Year ○ <ᐱᐱ>: Month ○ <ᑑᑑ>: Day ○ <ᑲᑲ>: Hour ○ <ᐱᐱ>: Minute ○ <ᑭᑭ>: Second ⇒ The scales switch to operating mode
	<ᐃᐱᑦ ᐱᑦ> Date format	• <ᑭᐱᑑ> Year-Month-Day • <ᐱᑑᑭ> Month-Day-Year • <ᑑᐱᑭ> Day-Month-Year
	<ᑲᑦ ᐱᑦ> Time format	• <ᑭᑲᑲ> 24 hours • <12ᑲ> 12-hour (AM, PM)
<ᑭᑦ ᑭᑦ> Available units	These settings allow you to determine the availability of units in the application menu. For example, you can disable units that are not relevant in the application field.	
	Unit selection	• <ᑭᑦ> Make unit available • <ᑭᑦᑦ> Lock unit
<ᐱᑭᑦᑭ> 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. Note: Settings for an application can only be made if it is not active in operating mode.	
	Application sel- ection	• <ᑭᑦ> Make application available • <ᑭᑦᑦ> Lock application
<ᑭᑭᑦ> Menu lock	<ᑭᑭᑦ> Setup menu	• <ᑭᑦ> Lock menu: ⇒ Password prompt appears ⇒ Enter a 6-digit password (selectable 0–9) • <ᑭᑦᑦ> Unlock
	<ᑭᑭᑦᑦ> Service menu	
<ᑭᑭᑦᑦ> Restore factory settings (except date and time)	<ᑭᑭᑦ>	After selecting <ᑭᑭᑦᑦ>, the message <ᑭᑭᑦ> appears on the display. Once this message is confirmed, the scale switches off automatically. The next time it is switched on, the settings will have been reset to factory defaults. However, the date and time are not reset.

16 Communication with peripheral devices

16.1 KERN Communications Protocol (KERN interface protocol)

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

To activate KCP, please refer to the menu overview in your balance’s 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 balance can be queried by sending the command “I0” followed by CR LF.

Excerpt of the most commonly used KCP commands:

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:

Com-mand	S	Send stable value
Possible answers	S_ S_100.00_g S_l S_+ or S_-	Transmission of stable weight value Another command is currently being executed or a timeout has been reached. Overload or underload

16.2 KERN Alibi memory

For weighings subject to legal metrology that are evaluated and processed via a connected PC (e.g. printing a delivery note via a PC instead of a printer connected directly to the scale), the Weights and Measures Act requires electronic archiving using a verifiable, tamper-proof data storage device for the purposes of consumer protection. These stored data records can be retrieved and displayed at any time via a connected PC.

- The alibi memory offers the option of storing up to 250,000 weighing results. If the memory is full, IDs that have already been used are overwritten (starting with the first ID).
- The saving process can be initiated by pressing the Print key or by using the KCP command "S" or "MEMPRT".
- The weighing value (N, G, T), date and time, and a unique Alibi ID are stored.
- When the data is output, the unique alibi ID is also output for identification purposes.
- The stored data can be retrieved using the KCP command "MEMQID". This allows a specific single ID or a range of IDs to be queried.
- Example:
 - o MEMQID 15 → The data record stored under ID 15 is returned.
 - o MEMQID 15 20 → All data records stored from ID 15 to ID 20 are returned.

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

i	Protection of stored legally relevant data: - Once a data record has been saved, it is immediately read back and checked byte by byte. If an error is detected, the data record is marked as invalid. If there is no error, the data record can be printed if required. - A checksum protection is stored in every data record. - All information on a printout is read from memory with checksum verification, rather than directly 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 data record is written to memory. - A write lock procedure is performed immediately after a data record is saved (before verification). - The memory has a data retention period of more than 20 years.
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16.3 Output functions

16.3.1 Sum mode <Σ>

This function adds the individual weighing values to the total memory at the touch of a button and prints them out when an optional printer is connected.



Prerequisite: Menu setting

<PrModE>→<Er LG>→<MANUAL>→<on>

Activating the function

- ⇒ Open the setup menu.
- ⇒ Use [↑]/[↓] to select <Pr mnt>→<Σ>→<on> and confirm with [→].
- ⇒ Press [←] repeatedly to exit the menu.

Using the totalisation function

- ⇒ If necessary, place the weighing pan and tare.
- ⇒ Place the first item to be weighed on the weighing pan.
- ⇒ Wait until the stability indicator (▴ ▾) appears, then press [PRINT].
- ⇒ The value is stored in the total memory and the display changes to <Σ>, followed by the current weight value.
- ⇒ The total symbol (Σ) is displayed.
- ⇒ Remove the item being weighed.
- ⇒ Weigh further items as described above.
- ⇒ The number of weighings is displayed via <Σ>, <Σ>, <Σ> and so on.

Display 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 (Σ) goes out.
- ⇒ Press **[←]** repeatedly to exit the menu.

Sample report (KERN YKB-01N):

Menu setting <PrNode>→<WEght>→<CntPrt>→<Format>→<Short>

No.				1		First weighing
N:	S S	1.9993	kg			
T:		0.0000	kg			
G:		1.9993	kg			
C:		1.9993	kg			
No.				2		Second weighing
N:	S S	0.9992	kg			
T:		0.0000	kg			
G:		0.9992	kg			
C:		2.9985	kg			
No.				3		Third weighing
N:	S S	0.4992	kg			
T:		0.0000	kg			
G:		0.4992	kg			
C:		3.4977	kg			
No.				3		
C:		3.4977	kg			Number of weighings/ Total

Sample report (KERN YKB-01N):

Menu setting

<PrNode>→<WEIGHT>→<SGLPrnt>→<on>

No.	200.0 g	1	←	PRINT	First weighing
C:		200.0 g		PRINT	Second weighing
No.	500.0 g	2	←	PRINT	
C:		700.0 g		PRINT	Third weighing
No.	400.0 g	3	←	PRINT	
C:		1100.0 g		PRINT	Fourth weighing
No.	100.4 g	4	←	PRINT	
C:		1200.4 g		PRINT	Number of weighings/
No.		4	←	PRINT	Total
C:		1200.4 g		PRINT	

16.3.2 Manual data output <MANUAL>

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

Activating the function

- ⇒ Open the setup menu.
- ⇒ Use [↑]/[↓] to select <Print>→<PrNode>→<WEIGHT>→<MANUAL>→<on> and confirm with [→].
- ⇒ Press [←] repeatedly to exit the menu.

Apply function

- ⇒ If necessary, place the weighing container on the platform and tare.
- ⇒ Place the sample on the weighing pan.
- ⇒ Press [PRINT].
- ⇒ The weight value is displayed.

16.3.3 Automatic data output <Auto>

When automatic data output is enabled, printing begins as soon as the weight reading is stable and positive.

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

Example: <Range> = 5

d = 0.1 g

Result: Values ≤ 0.5 g are not printed

Activating the function

- ⇒ Open the setup menu.
- ⇒ Use [↑]/[↓] to select <Print>→ <PrintMode>→ <Error>→ <AutoPr>→ <on> and confirm with [→].
- ⇒ <Range> is displayed.
- ⇒ Confirm with [→].
- ⇒ <OFF> is displayed.
- ⇒ Use [↑]/[↓] to select the desired factor and confirm with [→].

<OFF>	No factor
<1>	1 x d
<2>	2 x d
<3>	3 x d
<4>	4 x d
<5>	5 x d

- ⇒ <Range> is displayed.
- ⇒ Press [←] repeatedly to exit the menu.

Apply function

- ⇒ If necessary, place the weighing container on the platform and tare.
- ⇒ Place the sample on the weighing pan.
- ⇒ As soon as the stability indicator (▬▬) appears, the result is displayed automatically.



A new reading can only be taken once the display has returned to zero and stabilised (remove the load from the scales → and wait for the zero and stability indicators to appear (▬▬)).

16.3.4 Continuous data output <CONT>

Activating the function

- ⇒ Open the setup menu.
- ⇒ Use [↑]/[↓] to select <Prnt> → <PrModE> → <ErrC> → <CONT> → <on> and confirm with [→].
- ⇒ <INTERRU> is displayed.
- ⇒ Confirm with [→].
- ⇒ The display switches to numeric input. The last setting is displayed and flashes.
- ⇒ Enter the interval in ms (select number: [↑]/[↓], next number: [→]) and confirm with [→].
- ⇒ The display changes to <INTERRU>.
- ⇒ Use [↑]/[↓] to select <PERO> and confirm with [→].
- ⇒ Use [↑]/[↓] to select the desired settings and confirm with [→].

<on>	0 (no load) continuous output
<OFF>	No output at 0 (no load)

- ⇒ <PERO> is displayed.
- ⇒ Use [↑]/[↓] to select <PERAB> and confirm with [→].

- ⇒ Use [↑]/[↓] to select the desired settings and confirm with [→].

<00>	Transfer stable values only (always active on calibrated devices and cannot be deactivated)
<0FF>	Also transmit unstable values (disabled on calibrated devices)

- ⇒ <P5tAb> is displayed.

- ⇒ Press [←] repeatedly to exit the menu.

Apply function

- ⇒ If necessary, place the weighing container on the platform and tare.
- ⇒ Place the sample on the weighing pan.
- ⇒ The weighing values are output at the defined interval.

Sample report (KERN YKB-01N):

S D	1.9997	kg
S D	1.9999	kg
S D	1.9999	kg
S D	1.9999	kg
S S	2.0000	kg
S S	2.0000	kg
S S	2.0000	kg
S S	2.0000	kg
S D	1.9998	kg
S D	1.9998	kg
S D	2.0002	kg
S D	2.4189	kg
S D	2.9998	kg
S D	2.9996	kg
S D	2.9996	kg
S D	2.9997	kg
S D	2.9997	kg
S S	2.9996	kg
S S	2.9996	kg

16.4 Set the output format to ‘ ’

- ⇒ Open the setup menu.
- ⇒ Use [↑]/[↓] to select <Pr int>→ <PrModE>→ <WEght>→ <GntPrt> and confirm with [→].

Enable / disable output parameters

- ⇒ Use [↑]/[↓] to select a parameter and confirm with [→].

<Gross>	Output gross weight
<Net>	Display net weight
<Tare>	Display tare weight

- ⇒ Use [↑]/[↓] to enable or disable the output parameter and confirm with [→].

<On>	Enable output of the parameter
<Off>	Deactivate output of the parameter

Set format

- ⇒ Use [↑]/[↓] to select <Format> and confirm with [→].
- ⇒ Use [↑]/[↓] to select the desired setting and confirm with [→].

<Short>	Standard measurement report
<Long>	Detailed measurement report

- ⇒ Press [←] repeatedly to exit the menu.

Sample report (KERN YKB-01N):

Format → Short	Format → Long
N: 2.000 kg T: 0.500 kg G: 2.500 kg	Net weight: 2.000 kg Tare weight: 0.500 kg Gross weight: 2.500 kg

17 Maintenance, servicing, disposal



Disconnect the device from the mains supply before carrying out any maintenance, cleaning or repair work.

17.1 Cleaning

Do not use aggressive cleaning agents (solvents or similar), but only a cloth moistened with mild soapy water. Ensure that no liquid penetrates the device. Wipe with a dry, soft cloth.

Loose sample residues/powder can be carefully removed with a brush or handheld vacuum cleaner.

Remove any spilled sample material immediately.

17.2 Maintenance

- ⇒ The instrument must only be opened by trained service technicians authorised by KERN.
- ⇒ Disconnect from the mains before opening.

17.3 Disposal

The operator must dispose of the packaging and the device in accordance with the applicable national or regional legislation at the place of use.

18 Quick Troubleshooting Guide

If a fault occurs during the programme sequence, the balance should be switched off briefly and disconnected from the mains. The weighing process must then be restarted from the beginning.

Fault	Possible cause
The weight display is not lit.	• The scales are not switched on. • The mains connection has been interrupted (mains cable not plugged in/faulty). • The mains power has failed.
The weight display keeps changing	• Draughts/air movements • Vibrations from the table/floor • The weighing platform is in contact with foreign objects. • Electromagnetic fields/static charge (choose a different location/switch off the interfering device if possible)
The weighing result is obviously incorrect	• The scale reading is not at zero • The calibration is no longer correct. • The scales are not level. • There are significant temperature fluctuations. • Electromagnetic fields / static charge (choose a different location / switch off the interfering device if possible)

19 Error messages

Error description	Cause	Remedy
0L n t	Zero adjustment range exceeded	Keep the zero adjustment range within +/-2% of the maximum weight
undEr2	Zero range not reached	
instAb	Load unstable	- Place load gently - Ensure stable ambient conditions - Eliminate electromagnetic fields
ErOnG	Calibration error	Perform alignment again
5EtEtC	Date and time are incorrect or not set	Set the date and time in the setup menu
AlibiAU	Alibi memory not available or faulty	Please contact KERN Service
no232	RS232 not available	Connect RS232-KUP
noW i-F i	WiFi not available	Connect WiFi connector
L _ _ _ _	Underload	Weight must be at least the minimum weight
Γ _ _ _ _	Overload	Apply a lower weight
LoBbAt	Battery capacity exhausted	Replace battery / charge rechargeable battery