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User manual
Counting scales

KERN CKE

Rev. 3.1
2020-08
GB

CKE-BA-e-1930

GB

KERN CKE

Rev. 3.1 2020-08

User manual

Counting scales

English

Contents

English

1 Technical specification

KERN	CKE 6K0.02	CKE 8K0.05	CKE 16K0.05	CKE 16K0.1
Product number / type	TCKE 6K-5-A	TCKE 8K-5-A	TCKE 16K-5-A	TCKE 16K-4-A
Interval (*d*)	0.02 g	0.05 g	0.05 g	0.1 g
Weighing range (*Max*)	6,000 g	8,000 g	16,000 g	16,000 g
Tare range (subtractive)	6,000 g	8,000 g	16,000 g	16,000 g
Reproducibility	0.04 g	0.05 g	0.1 g	0.1 g
Linearity	±0,1 g	±0,15 g	±0,25 g	±0,3 g
Settling time (standard)	3 s			
Minimum part weight when counting the number of pieces in laboratory conditions*	20 mg	50 mg	50 mg	100 mg
Minimum part weight when counting the number of pieces in standard conditions*	200 mg	50 mg	50 mg	1 g
Adjustment points	2/4/5/6 kg	2/4/5/7/8 kg	5/10/15/16 kg	5/10/15/16 kg
Recommended adjustment weight F1 (not delivered)	5 kg	5 kg + 2 kg	10 kg + 5 kg	10 kg + 5 kg
Heating time	4 h	2 h	4 h	2 h
Weight units	g, kg, lb, gn, dwt, oz, ozt			
Air humidity	max. 80%, relative (non-condensing)			
Permissible ambient temperature	+10°C ... +40°C			
Input voltage of the device	9 V, 300 mA			
Input voltage of the power supply	110–240 VAC; 50/60 Hz			
Batteries (option)	6 pcs., 1.5 V, type AA			
Rechargeable battery operation (option)	operating time 90 h (illumination off) operating time 40 h (illumination on)			
	charging time ca. 10 h			
Automatic switch-off (batteries)	3 min			
Automatic switch-off (mains)	the choice of: 1, 2, 3, 5, 30 min			
Housing dimensions (W × D × H) [mm]	350 × 390 × 120			
Scales plate, stainless steel [mm]	340 × 240			
Nett weight [kg]	6.5			
Interfaces	• RS-232 (DB9 port), standard equipment • 'USB Device' (USB B) port, factory option			
Equipment for the under-scales weighing hanger	yes (hook included)			

English

KERN	CKE 36K0.1	CKE 65K0.2
Product number / type	TCKE 36K-4-A	TCKE 65K-4-A
Interval (*d*)	0.1 g	0.2 g
Weighing range (*Max*)	36,000 g	65,000 g
Tare range (subtractive)	36,000 g	65,000 g
Reproducibility	0.2 g	0.4 g
Linearity	±0,5 g	±1,0 g
Settling time (standard)	3 s	
Minimum part weight when counting the number of pieces in laboratory conditions*	0.1 g	0.2 g
Minimum part weight when counting the number of pieces in standard conditions*	1 g	2 g
Adjustment points	10/20/30/36 kg	20/30/50/60 kg
Recommended adjustment weight F1 (not delivered)	20 kg + 10 kg	50 kg
Heating time	2 h	4 h
Weight units	g, kg, lb, gn, dwt, oz, ozt	
Air humidity	max. 80%, relative (non-condensing)	
Permissible ambient temperature	+10°C ... +40°C	
Input voltage of the device	9 V, 300 mA	
Input voltage of the power supply	110–240 VAC; 50/60 Hz	
Batteries (option)	6 pcs., 1.5 V, type AA	
Rechargeable battery operation (option)	operating time 90 h (illumination off) operating time 40 h (illumination on)	
	charging time ca. 10 h	
Automatic switch-off (batteries)	3 min	
Automatic switch-off (mains)	the choice of: 1, 2, 3, 5, 30 min	
Housing dimensions (W × D × H) [mm]	350 × 390 × 120	
Scales plate, stainless steel [mm]	340 × 240	
Nett weight [kg]	6.5	
Interfaces	• RS-232 (DB9 port), standard equipment • 'USB Device' (USB B) port, factory option	
Equipment for the under-scales weighing hanger	yes (hook included)	

English

*** Minimum part weight when counting the number of pieces in laboratory conditions:**

- There are optimum ambient conditions to count pieces with high resolution
- No diversification of the counted pieces' weight

*** Minimum weight of a single part when counting the number of pieces in standard conditions:**

- There are unsteady ambient conditions (wind gusts, vibrations)
- There is diversification of the counted pieces' weight

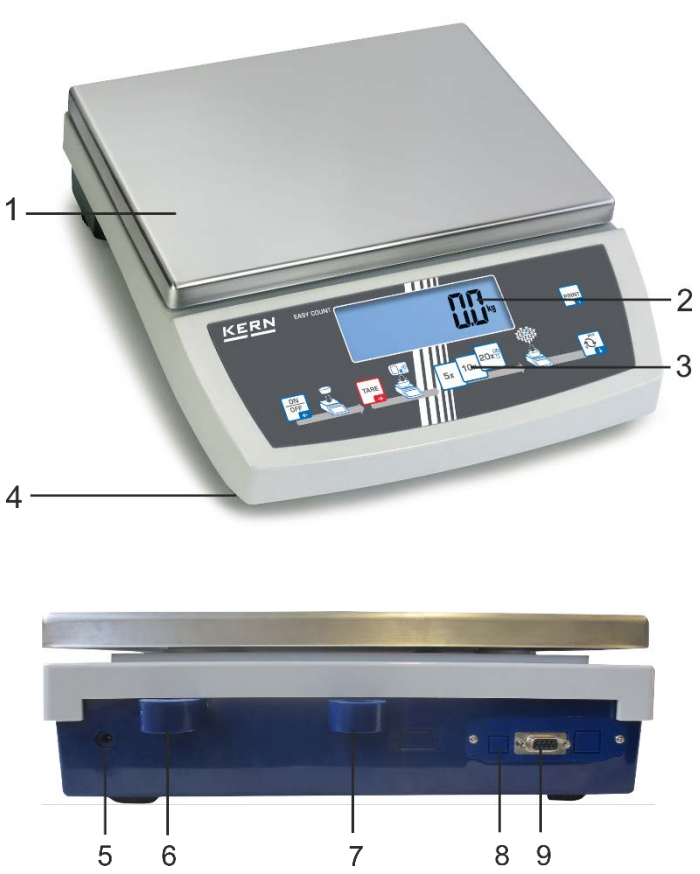
2 Declaration of Conformity

The valid Declaration of Conformity EC/UE is available at:

www.kern-sohn.com/ce

3 Device overview

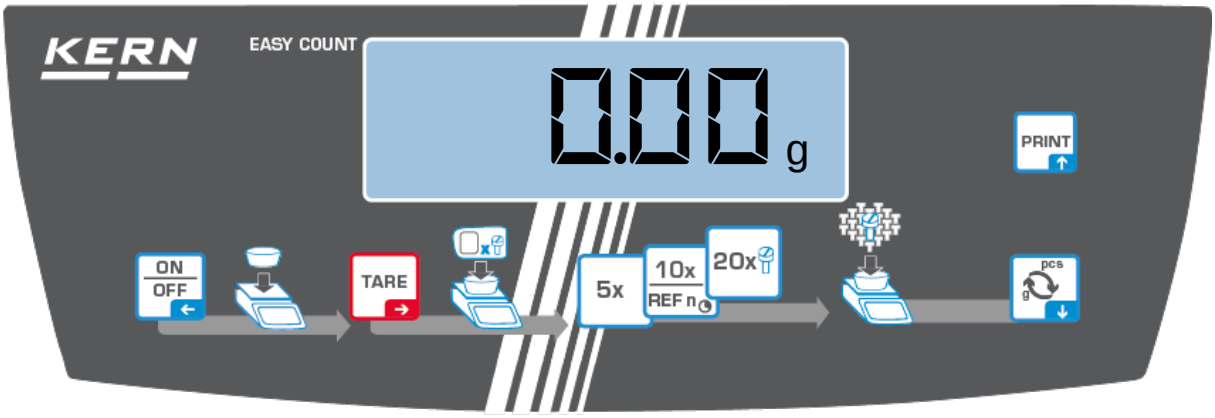
3.1 Parts



Item	Name
1	Scales plate
2	Display
3	Keyboard
4	Leveling screw foot
5	Power supply socket
6	Leveler
7	Theft-protection port
8	USB interface (factory option)
9	RS-232 interface

English

3.2 Operating controls



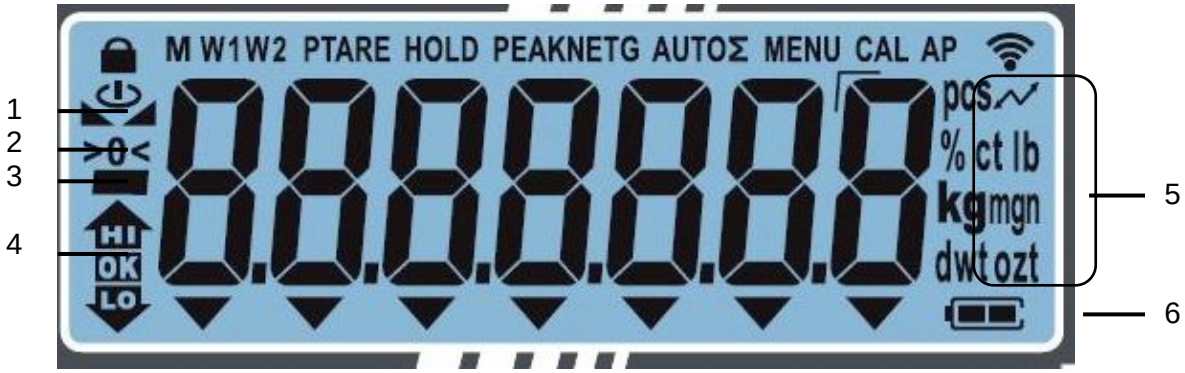
3.2.1 Keyboard overview

Button	Name	Function in the operating mode	Menu function
ON OFF	ON/OFF button	➢ Switching on/off (by pressing and holding the button) ➢ Display switching on and off (pressing the button)	➢ Return to a higher menu level ➢ Leaving menu / return to the weighing mode
TARE	TARE button	➢ Taring ➢ Resetting ➢ PRE-TARE function (by pressing and holding the button)	➢ Displaying the application menu (by pressing and holding the button) ➢ Activating menu item ➢ Selection confirmation
5x	5 x	➢ Number of reference items “5”	
10x REF n	10 x	➢ Number of reference items “10”	
	REF n	➢ Random number of reference items (by pressing and holding the button; see chapter 9.2)	
20x	20 x	➢ Number of reference items “20”	
pcs g	Toggle switch	➢ Switching between the indication of the weight and the number of pieces	➢ Navigation button ↓
PRINT	PRINT button	➢ Weight data transfer via the interface	➢ Navigation button ↑

3.2.2 Introducing the numerical value

Button	Name	Function
	Navigation button ➔	Digit selection
		Confirmation of the entered data. Press the button several times for every item. Wait until the window for value entry in the numerical form is displayed.
	Navigation button ➔	Decreasing the value of the flashing digit (0–9)
	Navigation button ➔	Increasing the value of the flashing digit (0–9)

3.2.3 Display overview



Item	Symbol	Description
1		Stabilization indicator
2	**>0<**	Zero indicator
3		Negative value indicator
-	**TARE**	Net weight value indicator
4	HI OK LO	Tolerance symbols for check weighing
5	**Unit indicator / Pcs**	the choice of: g, kg, lb, gn, dwt, oz, ozt or application icon [**Pcs**] for counting the number of pieces
6		Battery charge indicator

English

4 Basic instructions (general information)

4.1 Intended use

The scales you bought is intended for weighing the weighed material. It should be considered a “non-automatic scales”, e.g. the weighed material should be carefully placed manually on the scales plate center. The weight can be read after it has stabilized.

4.2 Non-intended use

The scales is not intended for dynamic weighing, e.g. for removing or adding small amounts of the weighed material. The scales’ “stabilizing and compensating” mechanism can result in displaying erroneous weighing results! (Example: slow outflow of the liquid from the container placed on the scales.)

Do not subject the plate to long-term load. This may damage the weighing mechanism.

Avoid any scales impact and overload higher than the stipulated maximum load (*Max*), deducting the tara from the existing load. This could damage the scales.

Never operate the scales in explosive atmospheres. The standard version is not explosion-proof.

Never introduce any structural modifications to the scales. This may result in displaying erroneous weighing results, violating the technical safety conditions, and also in scales damage.

The scales should always be operated in line with the provided guidelines. Other operation ranges / areas require a written consent of KERN.

4.3 Warranty

The warranty expires:

- if you fail to follow our guidelines included in the user manual;
- if you fail to use the device in line with the intended use;
- if you introduce any modifications or open the device;
- if the device gets damaged mechanically or damaged by the utilities, liquids and ordinary wear and tear;
- if the device is not set correctly or the electrical system is not as required;
- if the weighing mechanism gets overloaded.

4.4 Testing equipment supervision

Within the quality assurance system, you must check the technical measurement properties of the scales and possibly of the available reference weight regularly. To that aim, the responsible user should define a relevant cycle, as well as the type and scope of such an inspection. The information on the supervision of the testing equipment, which are scales and the required reference weights, can be found on the home page of KERN (www.kern-sohn.com). The reference weights and scales can be calibrated fast and for a low cost in the KERN calibration laboratory (against the national reference) approved by DKD (Deutsche Kalibrierdienst).

5 Basic safety instructions

5.1 Compliance with the instructions included in the user manual

- ⇨ Before you set and start the device, read this user manual thoroughly even if you are familiar with KERN scales.
- ⇨ All language versions contain non-binding translation.
  Only the original document in German is binding.

5.2 Personnel training

The device can be operated and maintained solely by trained workers.

6 Transport and storage

6.1 Checking during reception

Immediately after you have received the shipment, please check if it is free from any visible outer damage. The same applies for the unpacked device.

6.2 Packaging / return transport

- ⇨ Please keep all the parts of the original packaging in case you had to send it back to us.
- ⇨ Always use the original packaging for the return transport.
- ⇨ Before you dispatch the device, disconnect any connected cables as well as loose/moving parts.
- ⇨ Reinstall any transport locks, if present.
- ⇨ Protect all the parts, e.g. wind breaker, scales plates, power supply etc. from slipping and damage.

English

7 Unpacking, positioning and start-up

7.1 Installation place, operation place

The scales is designed to ensure reliable weighing results in standard operating conditions.

The choice of a correct scales location ensures its accurate and fast operation.

This is why you should follow the following rules when selecting the installation place:

- Place the scales on stable, flat surface.
- Avoid extreme temperatures and temperature fluctuations, occurring e.g. when you place it at the radiator or in a place exposed to direct sun rays.
- Protect the scales from the direct draft present at open windows and doors.
- Avoid impact when weighing.
- Protect the scales from high humidity of air, vapours and dust.
- Do not expose it to long-term heavy moisture. Any forbidden condensation of the air moisture on the device may occur when a cold device is placed in a much hotter environment. In such circumstances, leave the device not connected to the mains for 2 hours to adapt to the ambient temperature.
- Avoid static discharge from the weighed material and scales vessel.

If there are any electromagnetic fields, static discharge and unstable power supply, high readout deviations (erroneous weighing results) may occur. In such circumstances, change the location.

7.2 Unpacking and check

Remove the device and accessories from the packaging, remove the packaging material and place the device in the target location. Check if all components included in the delivery are present and not damaged.

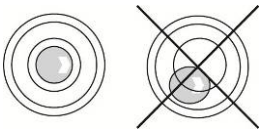
Scope of delivery / standard accessories:

- Scales, see chapter 3.1
- Power supply
- User manual
- Dust cover
- Hook for the under-scales weighing hanger / eye

7.3 Integration, setting and leveling

The correct location is decisive for the accurate weighing results of high-resolution scales (see chapter 7.1).

- ⇨ Remove four transport locks at the scales plate catches.
- ⇨ Install the scales plate and, whenever required, also the wind breaker.
- ⇨ Place the scales on smooth surface.
- ⇨ Level the scales using the leveling feet. The air bubble in the leveler must be present in the marked area.



- ⇨ Check leveling at regular intervals.

7.4 Power supply

Choose the plug appropriate for the operation country and plug it into the power supply.

Check if the scales voltage is set correctly. The scales can be connected to the mains only when the voltage specified on the scales (sticker) and the local voltage are identical.

Always use the original power supply by KERN. Using any other products requires KERN consent.

Important information:

- ➢ Before you start the device, check the power cord for damage.
- ➢ The power cord must not have any contact with liquids.
- ➢ The plug must be always readily available.

7.5 Battery operation (option)

Once the batteries are discharged, the < inStAb> symbol is displayed.

- ⇨ Turn the scales upside down carefully to get access to its bottom.
- ⇨ Open the battery compartment and replace the batteries.

  Always pay attention to the correct polarity.
- ⇨ Replace the cover.

English

- To save batteries, you may enable the <AutoFF> function in the menu (see chapter 11.2.1).
- If the scales is not used for a prolonged period of time, remove the batteries and store them separately. Any leaking electrolyte could damage the scales.

7.6 Rechargeable battery operation (option)

The rechargeable battery is charged using the supplied power cord.
Before first use, charge the battery for at least 15 hours using the power cord.

To save the rechargeable battery, you may enable the <AutoFF> function in the menu (see chapter 11.2.1).

Once the rechargeable battery is discharged, the < inStAb> symbol is displayed. To charge the battery, connect the power cord as soon as possible. The charging time until the full charging status is reached is ca. 10 hours.

7.7 Connecting peripherals

Before you connect or disconnect any extra devices (printer, computer) to/from the data interface, the scales should always be disconnected from the mains.

Use solely accessories and peripherals supplied by KERN with the scales, being perfectly compatible with it.

7.8 First start

To get accurate weighing results using electronic scales, ensure the scales achieves the appropriate operating temperature (see “Heating time”, chapter 1). During the heating time, the scales must be connected to the power source (the socket, rechargeable battery or batteries).

The scales accuracy depends on the local standard gravity.
Always follow the guidelines in the “Adjustment” chapter.

7.9 Adjustment

As the standard gravity value is not the same in every spot on Earth, every display with the scales plate connected should be adjusted, in line with the weighing rules resulting from the laws of physics, to the standard gravity in the scales location (provided the scales system has not already been subject to factory adjustment in its location). Such an adjustment process should be carried out during the first start, following every location change and also in the case of any ambient temperature fluctuations. To ensure achieving accurate measurement date, it is also recommended to carry out regular display adjustment also in the weighing mode.

⇨ **How to do it, see chapter 11.2.2**

8 Basic mode

8.1 Switching on/off

Switching on:

⇨ Press the **ON/OFF** button.
Once the displays is lit, the scales autotest will be carried out.
Wait until the weight is displayed, the scales is ready for use.

Switching off:

⇨ Press and hold the **ON/OFF** button until the display goes off.

8.2 Ordinary weighing

⇨ Check the zero indication [**>0<**], and whenever required, zero by pressing the **TARE** button.

⇨ Place the weighed material.

⇨ Wait until the stabilization indicator is displayed ( ).

⇨ Read out the weighing result.

> **Overload warninig**
> Always avoid any device overload higher than the stipulated maximum load (*Max*), deducting the tara from the existing load. This could damage the device.
> The exceeded maximum load is indicated with [- - -]. Reduce the scales load or reduce the initial load.

8.3 Weighing with tara

8.3.1 Taring

The empty weight of any vessel used for weighing can be tared, pressing the button which results in displaying the net weight of the weighed material during consecutive weighing processes.

⇨ Place the scales vessel on the scales plate.

⇨ Wait until the stabilization indicator is displayed ( ), and press **TARE**. The vessel weight will be saved in the scales memory. The zero indicator and "**TARE**" symbol will be displayed.
"**TARE**" indicates all displayed weight values are net values.

⇨ Weigh the weighed material.

⇨ Wait until the stabilization indicator is displayed ( ).

⇨ Read out the net weight.

English

- After the load is removed from the scales, the tara weight is displayed as a negative value.
- To delete the saved tara value, remove the load from the scales plate and press **TARE** button.
- The taring process can be repeated any number of times, e.g. when weighing several mixture ingredients (making up the weight). The limit is reached when the complete taring scope is used.
- Entering tara in the numerical form (PRE-TARE function), see chapter 11.2.5**.**

8.4 Weighing using the under-scales weighing hanger

Weighing using the under-scales weighing hanger enables to weigh any objects which cannot be placed on the scales plate because of their size or shape.

Carry out the following steps:

⇨ Switch the scales off.

⇨ Remove the plug (1) at the scales bottom.

⇨ Place the scales over an opening.

⇨ Screw the hook in completely.

⇨ Hang the weighed material and carry out weighing.

⚠ CAUTION

- **All hung objects must be stable enough and the weighed material must be fixed securely (the risk of separating).**
- **Never hang any loads exceeding the specified maximum load (*Max*) (risk of separating).**

No people or animals or items who/which could be injured or damaged can stay under the load.

TIP

After you have finished weighing, always close the opening on the scales bottom (dust protection).

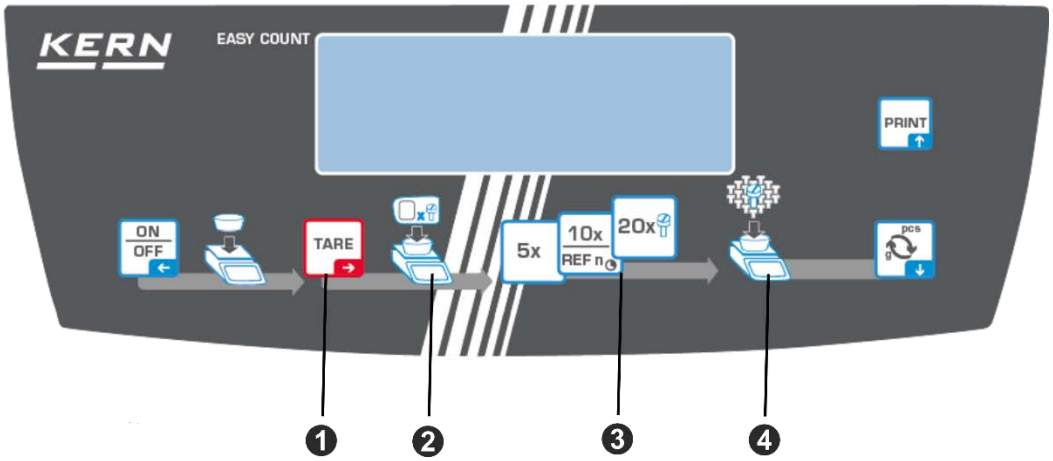
9 Counting the number of pieces

Before it is possible to count pieces using the scales, you should learn the average weight of an individual part (unit weight), the so-called reference value. For that purpose, place a specific number of counted parts on it. The scales will determine the total weight which will be divided by the number of pieces, the so-called reference piece number. Next, based on the calculated mean weight of an individual part, the number of pieces will be counted.

- The higher number of the reference pieces, the higher the accuracy of counting.
- For small or highly diverse parts, the reference value must be sufficiently high.
- For the minimum weight of the counted pieces, see the “Technical specification” table.

9.1 Counting the number of pieces using the reference item number 5,10 or 20

The required steps are vizualised in the user-friendly (intuitive) operator's panel:



1. Place an empty vessel on the scales plate and press TARE button.

   The vessel’s weight will be tared and the zero indicator will be displayed.

2. Fill the vessel with the reference parts (e.g. 5, 10 or 20 pieces).

3. Confirm the selected number of reference pieces, pressing the button (5 x, 10 x, 20 x). The mean weight of an individual part will be determined by the scales and then the part number will be displayed.

   Remove the reference load. The scales is in the counting mode and counts all parts present on the scales plate.

4. Fill the vessel with parts to be counted. The number of pieces will be displayed directly on the display.

 button enables to switch between the indication of the number of pieces and of the weight.

9.2 Counting the number of pieces using the selected reference item number <FrEE>

1. Place an empty vessel on the scales plate and press TARE button.

   The vessel's weight will be tared and the zero indicator will be displayed.

2. Fill the vessel with any number of reference parts.

3. Press and hold the  button, until the numerical value entry box is displayed. The active item blinks.

   Enter the reference part number; for introducing the numerical value see chapter 0.

   The mean weight of an individual part will be determined by the scales and next the part number will be displayed.

   Remove the reference load. The scales is in the counting mode and counts all parts present on the scales plate.

4. Fill the vessel with parts to be counted. The number of pieces will be displayed directly on the display.

 button enables to switch between the indication of the number of pieces and of the weight.

10 Check counting

The scales enables to weigh materials to the specific target number of pieces in the preset tolerance range. This function enables also to check if the weighed material belongs to the preset tolerance range.

Achieving the target value is indicated by an audible signal (if enabled in the menu) and a visual signal (tolerance symbol HI, OK, LO)

Visual signal:

Tolerance symbols provide the following information:

HI	The target number of pieces above the preset tolerance
OK	The target number of pieces in the preset tolerance range
LO	The target number of pieces below the preset tolerance

Audible signal:

The audible signal depends on the
<bEEPEr ➡ chEcH> menu item, see chapter 11.2.1.

You can choose:

Tolerance check type	**Audible signal settings**	
ch-oH The audible signal sounds when the target number of pieces belongs to the preset tolerance range	oFF	The audible signal is off
	SLoW bEEP	Slow
	StAndArd bEEP	Standard
	FASt bEEP	Fast
	cont.bEEP	Continuous
ch-Lo The audible signal sounds when the target number of pieces is lower than the preset tolerance range	oFF	The audible signal is off
	SLoW bEEP	Slow
	StAndArd bEEP	Standard
	FASt bEEP	Fast
	cont.bEEP	Continuous

English

ch-h The audible signal sounds when the target number of pieces is higher than the preset tolerance range	oFF	The audible signal is off
	SLoW bEEP	Slow
	StAndArd bEEP	Standard
	FASt bEEP	Fast
	cont.bEEP	Continuous

Limit determination:

⇨ In the application menu, display the <chEcH> menu item and confirm, pressing TARE.

⇨ The <L in it> symbol will be displayed. Confirm with TARE; the <L inUPP> symbol will be displayed.

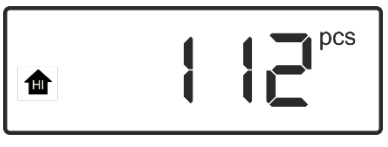
⇨ Confirm with TARE; wait until the window for value entry in the numerical form is displayed where you can enter the upper limit value <L inUPP>. Enter the upper limit value of the target number of pieces (for introducing the numerical value see chapter 3.2.2)) and confirm, pressing TARE. The <L inUPP> symbol will be displayed.

⇨ Confirm with TARE; wait until the window for value entry in the numerical form is displayed where you can enter the lower limit value < L inLoW >. Enter the lower limit value of the target number of pieces (for introducing the numerical value see chapter 3.2.2) and confirm with TARE. The < L inLoW > symbol will be displayed.

Tolerance check start:

⇨ Determine the mean weight of an individual part, see chapter 9.

⇨ Place the weighed material and, based on the tolerance symbols / audible signal, check if the weighed material belongs to the preset tolerance range.

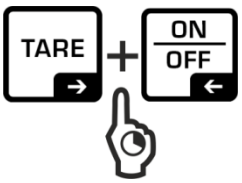
Weighed material below the preset tolerance	Weighed material in the preset tolerance	Weighed material above the preset tolerance
		

11 Menu

The menu is divided into the following menu blocks with submenus on several sub-levels:

- Application menu
- Setup menu Menu navigation

Displaying the menu:

Application menu	Setup menu
	
In the weighing mode press and hold TARE button until the first menu item is displayed.	In the weighing mode press and hold TARE and ON/OFF buttons simultaneously until the first menu item is displayed.

Parameter choice and setting:

Scrolling on the sale level	Using the navigation buttons, you may select consecutive menu blocks. Scroll forward, pressing PRINT. Scroll backward, pressing pcs.
Activating menu item / selection confirmation	Press TARE.
Return to a higher menu level	Press ON OFF.

English

11.1 Application menu

The application menu enables fast and targeted access to the selected application.

11.1.1 Counting mode overview

Level 1	Level 2	Description/chapter	
rEF Number of reference items, see chapter 9	5	Number of reference items 5	
	10	Number of reference items 10	
	20	Number of reference items 20	
	50	Number of reference items 50	
	FrEE	Selected arbitrarily; for introducing the numerical value see chapter 3.2.2.	
PtArE	ActuEL	Taking over the placed weight as the PRE-TARE value, see chapter 11.2.4	
	MAnuEL	Entering tara in the numerical form, see chapter 11.2.5	
chEcK Check counting, see chapter 10	L iMit	L iMuPP	The upper limit value of the target number of pieces; for introducing the numerical value see chapter 3.2.2
		L iMLod	The lower limit value of the target number of pieces; for introducing the numerical value see chapter 3.2.2
SEtuP see chapter 11.2.1.			

11.2 Setup menu

The setup menu enables to adapt the scales settings / scales behaviour to your requirements (e.g. ambient conditions, special weighing processes).

Such settings are general and independent of the selected application.

11.2.1 <Setup> menu overview

Level 1	Level 2	Level 3	Level 4 / description
		Description	
CAL Adjustment	CALEHt	➔ External adjustment, see chapter 11.2.2	
	CALEud	➔ User-defined external adjustment, see chapter 11.2.3	
	GrAAdJ	➔ Gravity constant in the adjustment location; for introducing the numerical value see chapter 3.2.2.	
	GrAuSE	➔ Gravity constant in the actual location; for introducing the numerical value see chapter 3.2.2.	
UnIt Units	g	This function enables to specify the weight unit which is to be used by the scales.	
	kg		
	gn		
	dwt		
	ozt		
	oz		
	lb		
	Free factor	Multiplication factor	
PtArE PRE-TARE	ActuEL	Taking over the placed weight as the PRE-TARE value, see chapter 11.2.4	
	MAnuEL	Entering tara in the numerical form, see chapter 11.2.5	
	CLEAr	Deleting the PRE-TARE value	
CoM Communications	rS232	bAud	1200
			2400
			4800
			9600
		dAtA	7db itS
			8db itS
		PAr itY	nonE
			odd
			EUEn
		StoP	1b it
			2b itS
		hAndSh	nonE
		Protoc	AcP

English

Pr int Data transfer, see chapter 12.4	intFcE	rs232	RS-232 interface
		usb	USB interface
	PrModE	Auto	CrAnGE **(off, 1, 2, 3, 4, 5)** Automatic transfer of a stable and positive weighing value. Another transfer only once the zero symbol is displayed and the scales is stabilized, see chapter 12.4.1
		MAnuAL	Data transfer after pressing the **PRINT** button, see chapter 12.4.2
		cont	intErU Continuous data transfer depending on the preset cycle, see chapter 12.4.3
rEF Number of reference items, see chapter 9	5	Number of reference items 5	
	10	Number of reference items 10	
	20	Number of reference items 20	
	50	Number of reference items 50	
	FrEE	Selected arbitrarily; for introducing the numerical value see chapter 3.2.2.	
chEcK Check counting, see chapter 10	L iM it	L iMuPP	The lower limit value of the target number of pieces; for introducing the numerical value see chapter 3.2.2
		L iMLod	The upper limit value of the target number of pieces; for introducing the numerical value see chapter 3.2.2
inFo Device information	ourLdc	0	Overload errors
	SEr iAL	n-A	Serial number
	SAUEr	b 10.27	Software version
	AdUALu	9905	A/D converter value

English

AutoFF Automatic switch-off function	Mode	oFF	Automatic switch-off function enabled
		Auto	Automatic scales switch-off after the time defined in <t IME> menu item elapsed with no change of the load or when not operated
		onLY0	Automatic switch-off only for the zero indication
	t IME	30 s	Automatic scales switch-off after the preset time elapsed with no change of the load or when not operated
		1 M in	
		2 M in	
		5 M in	
		30 M in	
		60 M in	
bL IGHt Display illumination	Mode	ALWAYS	Display illumination always on
		t IMEr	Automatic illumination switch-off after the time defined in <t IME> menu item elapsed with no change of the load or when not operated
		noBL	Display illumination always off
	t IME	5 s	Automatic display illumination switch-off after the preset time elapsed with no change of the load or when not operated
		10 s	
		30 s	
		1 M in	
		2 M in	
		5 M in	
		30 M in	

English

bEEPEr Audible signal	KEYb	oFF	Audible signal switch on/off by pressing the button	
		on		
	chEcK see chapter 10	ch-oK	oFF	The audible signal is off
			bLoW bEEP	Slow
			btAndArd bEEP	Standard
			FASt bEEP	Fast
			cont.bEEP	Continuous
		ch-Lo	oFF	The audible signal is off
			bLoW bEEP	Slow
			btAndArd bEEP	Standard
			FASt bEEP	Fast
			cont.bEEP	Continuous
		ch-hi	oFF	The audible signal is off
			bLoW bEEP	Slow
			btAndArd bEEP	Standard
			FASt bEEP	Fast
			cont.bEEP	Continuous
rESEt	Scales resetting to factory settings			

11.2.2 External adjustment <cALEHt>

⇨ Ensure stable environmental conditions. The heating time is required for the stabilization (see chapter 1).

⇨ Ensure there are no objects on the scales plate.

⇨ To display the setup menu, press and hold TARE and ON/OFF buttons simultaneously until the first menu item <cAL> is displayed.

⇨ Press TARE; the <cALEHt> symbol will be displayed.

⇨ Confirm, pressing TARE. The first selectable adjustment weight value will be displayed.

⇨ Using the navigation buttons ↓↑, select the required adjustment weight, see the table below.

Model	Adjustment weight [kg]	Model	Adjustment weight [kg]
TCKE 6K-5-A	2 / 4 / 6	TCKE 16K-5-A	5 / 10 / 15
TCKE 8K-5-A	2 / 5 / 8	TCKE 36K-4-A	10 / 20 / 30
TCKE 16K-4-A	5 / 10 / 15	TCKE 65K-4-A	20 / 40 / 60

⇨ Prepare the required adjustment weight.

⇨ Confirm the selection, pressing TARE. The <ZEro> and <PtLd> symbols will be displayed consecutively. Next, the value of the adjustment weight which should be placed on the scales will be displayed.

⇨ Place the adjustment weight and confirm, pressing TARE. The <WAit> and <F in 5h> symbols will be displayed consecutively.

⇨ After the successful adjustment, the scales will switch to the weighing mode again automatically.
If an adjustment error occurs (e.g. there are any items on the scales plate), the display will show <Wrong>. Switch the scales off and repeat the adjustment process.

11.2.3 External adjustment using the user-defined adjustment weight <cALEud>

⇨ Ensure stable environmental conditions. The heating time is required for the stabilization (see chapter 1).

⇨ Ensure there are no objects on the scales plate.

⇨ To display the setup menu, press and hold TARE and ON/OFF buttons simultaneously until the first menu item <cAL> is displayed.

⇨ Press TARE; the <cALEHt> symbol will be displayed.

⇨ Using the navigation buttons ↓↑, select the menu item <cALEud>.

⇨ Confirm, pressing TARE. A box for entering the numerical value will be displayed, enabling to enter the adjustment weight value.

⇨ Enter the weight value and confirm, pressing TARE; for entering numerical value see chapter 3.2.2.

⇨ The <ZEro> and <PtLd> symbols will be displayed consecutively. Next, the value of the adjustment weight which should be placed on the scales will be displayed.

English

⇨ Place the adjustment weight and confirm, pressing TARE. The <tArA> and <F in Sh> symbols will be displayed consecutively.

After the successful adjustment, the scales will switch to the weighing mode again automatically.
If an adjustment error occurs (e.g. there are any items on the scales plate), the display will show <Wrong>. Switch the scales off and repeat the adjustment process.

11.2.4 Taking over the placed weight as the PRE-TARE value <Ptare➡ actuel>

⇨ Place the scales vessel.

⇨ Display the <Ptare> menu item and confirm, pressing TARE.

⇨ To take over the weight of the placed weight as the PRE-TARE value, choose the <ActuEL> option, using navigation buttons ⇵.

⇨ Confirm, pressing TARE. The <tArA> symbol will be displayed.

⇨ The scales vessel weight will be saved as tara.

⇨ Remove the scales vessel, the following will be displayed: (TARE) symbol and tara weight with a negative symbol.

⇨ Place a filled scales vessel.

⇨ Wait until the stabilization indicator is displayed ( ).

⇨ Read out the net weight.

The entered tara value will be used until you enter a new one. To delete it, press TARE or confirm the menu item <CLEAr>, pressing TARE.

11.2.5 Entering tara in the numerical form, <PtArE➡nAnuEL>

⇨ Display the <Ptare> menu setting and confirm, pressing TARE.

⇨ To enter the PRE-TARE value in the numerical form, using ⇵ navigation buttons, select the <nAnuEL> menu item.

⇨ Confirm, pressing TARE.

⇨ Enter the known tara value; for introducing the numerical value see chapter 3.2.2.

⇨ The entered weight will be saved as tara; the following will be displayed: (TARE) symbol and tara weight with a negative symbol.

⇨ Place a filled scales vessel.

⇨ Wait until the stabilization indicator is displayed (▬).

⇨ Read out the net weight.

i The entered tara value will be used until you enter a new one. To delete it, enter a zero value or confirm the menu item <CLEAr>, pressing TARE.

12 Interfaces

The interfaces enable to exchange weighing data with the connected peripherals.

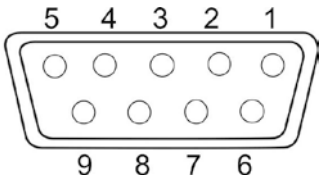
The data can be transferred to the printer, computer or control indicators. And conversely, the control and data input commands can be given using the connected devices (e.g. a computer, keyboard, barcode reader).

The available interfaces can be used in parallel.

12.1 Interface cable (RS-232)

Port

Sub-D 9-pin port (the port = in the scales)



Pin 1: VB
Pin 2: TXD (RS232)
Pin 3: RXD (RS232)
Pin 4: VCC
Pin 5: Weight (RS232)
Pin 6: “Low” signal LED “IN4”)
Pin 7: “Hi” signal (LED “IN2”)
Pin 8: “OK” signal (LED “IN1”)
Pin 9: Slow

Standard KERN setting

- 8 data bits
- 1 stop bit
- no parity

12.2 Printer connection

⇨ Switch the scales and the printer off.

⇨ Connect the scales with the printer interface using the appropriate cable. Trouble-free operation is ensured only when the appropriate interface cable by KERN is used (optional).

⇨ Switch the scales and the printer on.

The communication parameters (transmission speed, bits and parity) of the scales and the printer must be compliant, see the <coM ➡ rS232> **menu item** (chapter 11.2.1)**.**

Examples of KERN YKB-01N printouts

S S 9.9949 g	Stable/positive weighing value
S D 9.9949 g	Unstable/positive weighing value
S S -9.9949 g	Stable/negative weighing value
S D -9.9949 g	Unstable/negative weighing value
S S 110 PCS	Stable piece count value
S D 110 PCS	Unstable piece count value

English

12.3 KCP interface commands

The detailed description can be found in the KERN Communication Protocol manual, available in the Download Center on the home page of KERN.

12.4 Data transfer functions

12.4.1 Data transfer after pressing the PRINT <MANUAL> button

Function enabling:

⇨ In the setup menu, display the <Pr int➡ PrMode> menu item and confirm, pressing TARE.

⇨ To transfer data manually, using navigation buttons ↓↑, choose the <MANUAL> menu item.

⇨ Confirm, pressing TARE.

⇨ Return to the weighing mode, pressing ON/OFF button.

Placing the weighed material:

⇨ Whenever required, place an empty vessel on the scales and tare it.

⇨ Place the weighed material and wait until the stabilization indicator is displayed (◣◢). The weighing value will be transferred after PRINT button is pressed.

⇨ Remove the weighed material.

12.4.2 Continuous data transfer <cont>

Function enabling and transfer cycle setting:

⇨ In the setup menu, display the <Pr int➡ PrMode> menu item and confirm, pressing TARE.

⇨ To transfer the data continuously, using the navigation buttons ↓↑, select the <cont> menu item.

⇨ Confirm with TARE; the < intErU> symbol will be displayed.

⇨ Confirm by pressing TARE and using the navigation buttons, ↓↑, set the required cycle in miliseconds, (for introducing the numerical value, see chapter 3.2.2).

Placing the weighed material:

⇨ Whenever required, place an empty vessel on the scales and tare it.

⇨ Place the weighed material.

⇨ The weighing values will be transferred in line with the predefined cycle.

14 Maintenance, service and disposal

Before you start any works related to the maintenance, cleaning and repair, disconnect the device from the operating voltage.

14.1 Cleaning

Do not use any aggressive cleaning agents (solvents etc.), but clean the device with a cloth and mild soap solution. The liquid must not get inside the device. Wipe with a dry, soft cloth.

Any loose specimen/powder remains can be removed carefully with a brush or a handheld vacuum cleaner.

Remove any scattered weighed material immediately.

14.2 Maintenance and service

⇨ The device can be operated and maintained solely by the technicians trained and authorized by KERN.

⇨ Disconnect from the mains before opening.

14.3 Disposal

The packaging and the device should be disposed in accordance with the national or regional law in the location where the device is operated.

15 Help for any minor failures

If there are any programme execution problems, the scales should be switched off and disconnected from the mains for a while. Next, the weighing process should be started anew.

Problem	Possible cause
The weight indicator is not lit	• The scales is not on. • Interrupted mains connection (mains cable not connected/damaged). • Mains voltage failure.
The weight indication keeps fluctuating	• Draft/air movements. • Table/air vibrations. • The scales plate is in contact with foreign bodies. • Electromagnetic fields / static discharge (select another location / if possible, switch off the interfering device).
The weighing result is clearly wrong	• The scales indication was not reset. • Incorrect adjustment. • Scales not placed on a level surface. • There are heavy temperature fluctuations. • The heating time not observed. • Electromagnetic fields / static discharge (select another location / if possible, switch off the interfering device).