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Operating and Installation Instructions Display device

KERN KFT-TM

Version 1.0
09/2016
GB

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KFT-TM -BA-e-1610

GB

KERN KFT-TM

Version 1.0 09/2016

Operating and Installation Instructions
Display device

Contents

English

English

English

1 Technical data

KERN	KFT-TM
Display	6 - digit
Resolution (non verified)	30.000
Weighing ranges	2
Divisions	1,2,5,…10n
Weighing Units	g, kg, lb, oz
Functions	Stückzählen, Toleranzwägen, Take off, Rezeptieren, Fill to Target, Klassifizierung, Summieren,
Display	LCD Touch, with back lighting
DMS weighing cells	80-1200 Ω. Max. 8 item per 350 Ω; Sensitivity 2-3 mV/V
Range calibration	We recommend ≥ 50 % max.
Electric Supply	Input voltage 110 V – 230 V AC
	Power pack secondary voltage 12V, 2500mA
Housing	252 x 152 x 134 mm
Operating temperature	-10°C – 40°C
Weight kg (net)	1 kg
Rechargeable battery (optional)	Operating time (with back lighting) 7 h
	Charge time 12 h
Interface	2 x RS 232 2 x USB Ethernet
Support base incl. wall bracket	Standard
User language selectable	German, English, French, Italian, Spanish

English

2 Declaration of conformity

The current EC/EU Conformity declaration can be found online in:

www.kern-sohn.com/ce

3 Appliance overview

English

Pos.	Designation	Pos.	Designation
1	Touch screen	3	Status display
2	Keyboard	4	Rechargeable battery status display

Position of battery compartment:

Connections / interfaces:

Pos.	Designation	Pos.	Designation
5	Connector for AC adapter	8	Input connection load cell cable
6	Serial interfaces RS 232	9	USB connections
7	Ethernet		

English

3.1 Keyboard overview

English

Button	Name	Explanation
ON OFF	ON/OFF	Switch machine on/off
	Home	Back to start screen
F	Function key	Invoke the menu <Operator/Technical setup>
TARE	Taring	Tare balance
→0←	Zeroing	Set balance to zero

Do not operate touch screen with pointed or sharp objects!
This could damage the touch screen.

3.2 Display overview (start screen "Weighing mode")

Pos.	Designation
1	Date/time
2	Maximum load
3	Readability
4	Stability display
5	Indicator “zero display”
6	Weight unit
7	Settings
8	Output data via interface, e.g. to a printer
9	Switching Off
10	Application selection (adjustable, see chap. 9.3)
11	Currently available buttons (zero, tare, PRE-tare)
12	Capacity display
13	Weight value
14	Back to start screen

English

4 Basic Information (General)

4.1 Proper use

The balance you purchased is intended to determine the weighing value of material to be weighed. It is intended to be used as a “non-automatic balance”, i.e. the material to be weighed is manually and carefully placed in the centre of the weighing pan. As soon as a stable weighing value is reached the weighing value can be read.

4.2 Improper Use

Do not use balance for dynamic add-on weighing procedures, if small amounts of goods to be weighed are removed or added. The “stability compensation“ installed in the balance may result in displaying an incorrect measuring value! (Example: Slowly draining fluids from a container on the balance.)
Do not leave permanent load on the weighing pan. This may damage the measuring system.
Impacts and overloading exceeding the stated maximum load (max) of the balance, minus a possibly existing tare load, must be strictly avoided. Balance may be damage by this.
Never operate balance in explosive environment. The serial version is not explosion protected.
The structure of the balance may not be modified. This may lead to incorrect weighing results, safety-related faults and destruction of the balance.
The balance may only be used according to the described conditions. Other areas of use must be released by KERN in writing.

4.3 Warranty

Warranty claims shall be voided in case

- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened
- Mechanical damage or damage by media, liquids, natural wear and tear
- The appliance is improperly set up or incorrectly electrically connected
- The measuring system is overloaded

4.4 Monitoring of Test Resources

In the framework of quality assurance the measuring-related properties of the balance and, if applicable, the testing weight, must be checked regularly. The responsible user must define a suitable interval as well as type and scope of this test. Information is available on KERN's home page (www.kern-sohn.com with regard to the monitoring of balance test substances and the test weights required for this. In KERN's accredited DKD calibration laboratory test weights and balances may be calibrated (return to the national standard) fast and at moderate cost.

5 Basic Safety Precautions

5.1 Pay attention to the instructions in the Operation Manual

⇨ Carefully read this operation manual before setup and commissioning, even if you are already familiar with KERN balances.

5.2 Personnel training

The weighing balance may only be operated and maintained by trained staff.

6 Transport and storage

6.1 Testing upon acceptance

When receiving the appliance, please check packaging immediately, and the appliance itself when unpacking for possible visible damage.

6.2 Packaging / return transport

⇨ Keep all parts of the original packaging for a possibly required return.

⇨ Only use original packaging for returning.

⇨ Prior to dispatch disconnect all cables and remove loose/mobile parts.

⇨ Reattach possibly supplied transport securing devices.

⇨ Secure all parts such as the glass wind screen, the weighing pan, power unit etc. against shifting and damage.

English

7 Unpacking, Setup and Commissioning

7.1 Installation Site, Location of Use

The balances are designed in a way that reliable weighing results are achieved in common conditions of use.
You will work accurately and fast, if you select the right location for your balance.

Therefore, observe the following for the installation site:

- Place the balance on a firm, level surface;
- Avoid extreme heat as well as temperature fluctuation caused by installing next to a radiator or in the direct sunlight;
- Protect the balance against direct draughts due to open windows and doors;
- Avoid jarring during weighing;
- Protect the balance against high humidity, vapours and dust;
- Do not expose the device to extreme dampness for longer periods of time. Non-permitted condensation (condensation of air humidity on the appliance) may occur if a cold appliance is taken to a considerably warmer environment. In this case, acclimatize the disconnected appliance for ca. 2 hours at room temperature.
- Avoid static charge of goods to be weighed or weighing container.

If electro-magnetic fields or static charge occur, or if the power supply is unstable major deviations on the display (incorrect weighing results) are possible. In that case, the location must be changed.

7.2 Unpacking, inspection and placing

Remove device and accessories carefully from packaging, remove packaging material and place device at the planned work place. Verify that there has been no damage and that all packing items are present.

Scope of delivery / serial accessories:

- Display device, see chap. 2
- Mains adapter
- Support base incl. wall bracket
- Operating manual

⇨ Place weighing pan on the rubber elements

7.3 Placing

Mount the display unit in a way that facilitates operation and where it is easy to see.

Usage with support base (KFB-TAM only)

Usage with wall mount (KFB-TAM only)

English

7.4 Mains connection

Select a country-specific power plug and insert it in the power unit.

Check, whether the voltage acceptance on the scales is set correctly. Do not connect the scales to the power grid unless the information on the scales (sticker) matches the local mains voltage.

Only use KERN original mains adapter. Using other makes requires consent by KERN.

Important:

- Before starting your weighing balance, check the mains cable for damage.
- Ensure that the power unit does not come into contact with liquids.
- Ensure access to power plug at all times.

7.5 Rechargeable battery operation

Before the first use, the battery should be charged by connecting it to the mains power supply for at least 12 hours.
The LED display informs you during loading about the loading status of the rechargeable battery.

red: Charging storage battery

green: Rechargeable battery completely reloaded

7.6 Commissioning

In order to obtain exact results with the electronic balances, your balance must have reached the operating temperature (see warming up time chap. 1). During this warming up time the balance must be connected to the power supply (mains, accumulator or battery).
The accuracy of the balance depends on the local acceleration of gravity. Strictly observe hints in chapter Adjustment.

7.6.1 Switch on balance

⇨ Press ON/OFF key until you hear an acoustic signal.
The status indicator lights up.
⇨ Wait until the start screen appears.

The first time you switch the balance on, "Weighing" will appear as the start screen. When you switch on next time, the start-up screen will appear with the last application used prior to switching off.

7.6.2 Switch off balance

⇨ To turn off the display, press the **ON/OFF**-key shortly. During this process the weighing balance will be moving into ready mode. The status indicator stays on.

The weighing balance will be ready for operation immediately after activation without requiring any time to warm up.

⇨ Press the ON / OFF key to switch off the balance. The status indicator goes off.

or

⇨ In the display, tap  and confirm query <Switch off balance> The status indicator goes off.

English

7.6.3 Selecting user language

The display is set to English upon delivery. For other languages, see chap. 9.3 <Operator setup➡ Display➡ language>.

1

Tap **<Operator setup>**

2

The available languages are displayed

English

7.7 Peripheral equipment

Before connecting or disconnecting of additional devices (printer, PC) to the data interface, always disconnect the balance from the power supply.
With your balance, only use accessories and printers by KERN, as they are ideally tuned to your balance.

7.8 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out for the first commissioning, after each change of location as well as in case of fluctuating environment temperature. To receive accurate measuring values it is also recommended to adjust the balance periodically in weighing operation.

Adjustment with external weight

- Prepare adjustment weight, see chap. 1.
  The adjustment weight you use is dependent on the capacity of the balance. Perform adjustment as close as possible to the maximum load. Info about test weights can be found on the Internet at: http://www.kern-sohn.com
- Observe stable environmental conditions. A warming up time (see chapter 1) is required for stabilization.

Procedure:

⇨ Call up <Technical setup>, see chap. 9

⇨ Select <Adjustment> and follow the instructions on the display.

1

Unload the balance. Ensure that there are no objects on the weighing pan.
Tap <Continue>.

2

Place the adjustment weight at the centre of the weighing pan.
Tap <Continue>.

3

Tap input field.

4

Enter the value of the adjustment weight and confirm.

5

Tap <Finish>. Adjustment starts.

6

Wait until <Adjustment successful> is displayed. Take away adjustment weight

⇨ Back to the weighing mode press or repeatedly tap in the display.

English

7.8.1 Adjustment using gravitational constant

The balance can be adjusted to the installation location via the gravitational constant. Further adjustment with an external weight is then no longer required after setting up on site.

Procedure:

⇨ Open <Techncial setup>, see chap. 9
⇨ Select <Weighing ➡ gravitational constant>.

1

Tap on <Gravitational constant> input field.

2

Enter the gravitational constant of the installation location and accept with ↵

3

Confirm entry.

⇨ Back to the weighing mode press  or repeatedly tap  in the display.

English

8 Basic operation <Weighing>

The sequence of a simple weighing process is described in the chapter on Weighing below. Apart from the work steps described there (simple weighing, reset to zero, taring) the weighing balance offers additional options for adapting the “Weighing” application to your requirements. For the settings available see chap. 9.2

8.1 Weighing

The start screen <Weighing> appears automatically when you first switch on.
If the balance was already turned on, the application, in which the balance was last used appears.

☞ For warm-up time required for stabilisation, see chpt 1.

8.1.1 Simple weighing

1

Check zero display [→0←], if necessary reset to zero or tare.

2

Place goods to be weighed on balance. Wait until the stability display appears ( ). Read weighing result.

Depending on the setting in <Technical setup ➡ Autoprint activated/deactivated> the weighing value can be output either automatically by connecting an optional printer or after tapping .

Print example (KERN YKB-01N, Settings <Printing format> see chap. 9.4.2

Short print format without date/time	Short print format with date/time	Long print format with date/time
N: 5.000kg	01.09.21016 10:57 N: 5.000kg	01.09.21016 10:57 N: 5.000kg T: 0.396kg N: 5.396kg

English

All weighing data are saved automatically after pressing the PRINT key. These data records can be exported by the operator to a USB storage device, see chap. 9.2<Weighing data>.
The database allows for up to 1000 weighing results to be saved. When the capacity of the memory is exhausted, data records will be overwritten in turn, starting with the first data record.

8.2 Set to zero/return to zero

In order to obtain optimal weighing results, reset to zero the balance before weighing.

⇨ Unload the balance
⇨ The zero display appears, depending on the setting in the menu either automatically or after pressing →0←.

Settings:

- **Automatic return to zero**

  You can compensate for drift behaviour of the balance with this setting.

  Under <Technical setup ➡ Weighing ➡ Automatic Zero reset> the function can be deactivated or its limit can be determined.
  To open setup menu, see chap. 9

- **Zeroing range**

Autom. Zeroing range

The set value is automatically reset to zero on switching on.

Possible settings 0 (deactivated), 2, 3, 4, 10, 20, 100%.

Manual Zero range

After pressing →0← the balance admits the zero setting to the set value.

Possible settings 0 (deactivated), 2, 3, 4, 10, 20, 100%.

⇨ The values can be set under <Technical setup ➡ Weighing ➡ Automatic/manual zero set range>. To open setup menu, see chap. 9

8.3 Weighing with tare

8.3.1 Taring

The dead weight of any weighing container may be tared away by pressing a button, so that the following weighing procedures show the net weight of the goods to be weighed.

⇨ Put empty weighing container on the weighing pan.

⇨ Wait until the stabilisation indicator (▬) is displayed, then press TARE or tap TARE /›0‹ in the display. The zero display appears. The weight of the container is now internally saved.

ℹ

⇨ When the balance is unloaded the saved taring value is displayed with negative sign.

⇨ To delete the stored tare value, remove load from weighing pan and press **TARE**.

⇨ The taring process can be repeated any number of times, e.g. when adding several components for a mixture (adding). The limit is reached when the taring range capacity (see type plate) is full.

English

8.3.2 Tare specification (PRE-TARE)

If the container weight is known, the tare weight can be entered numerically.

1

Tap control button .

2

Enter known tare weight and confirm.

3

The saved tare value is displayed with a negative sign.

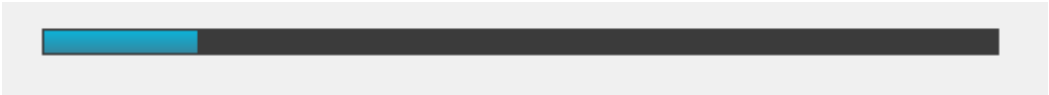
4

Place the filled weighing container. Wait until the stability display appears ( ). Read net weight.

⇨ To delete the saved tare value, enter the value zero in step 2.

8.3.3 Weighing with capacity display

The capacity display moves from the left to the right and proceeds equally to the weight loaded onto the weighing balance. The full range can be achieved at maximum load.



9 Setup menu

You can set the balance according to your requirements using the menu. Here, you can change the settings of the balance and activate the functions.

9.1 Call up menu and change settings

Call up menu:

⇨ Press F or tap in the display to go to the menu selection. The menu has two levels:

<Technical setup> Password protected

<Operator setup> Accessible without password

⇨ Select Setup menu

- **<Technical setup>**

1

Tap on **<Techncial setup>**, the password query will be displayed.

2

Enter the standard password <0000> or your personal password and confirm with ↵.

3

The available settings will be shown

English

- **<Operator setup>**

1

Tap **<Operator setup>**

2

The available settings will be shown

⇨ The available settings will be shown.

Change settings:

Tap on settings and make the desired changes or follow the display instructions.

Accept input with ↵. The display returns to the previous screen.

9.2 Overview <Technical setup>

Menu <**Weighing**>

Menu item	**Description**
Balance Type	Select single range / multiple interval / multiple range balance
Partition	Readability "d"
Maximum load	Upper limit of the weighing range "Max"
Constant of gravitation	Adjustment using gravitational constant, see chap. 7.8.1
Autom. Zero return	see chap. 8.2.
Auto/man. Zeroing range	see chap. 8.2.
Unit	Select weighing unit
Display speed	This setting is used to define how quickly the weighing balance considers a measured value as stable for release.
Decimal Positions	Select number of decimal places

Menu <**Adjustment**>

Menu item	**Description**
Adjustment	Adjustment with external weight, see chap. 0

Menu <**Screen**>

Menu item	**Description**
Screen	Adjust touch screen, see chap.9.4.1

Menu <**Password**>

Menu item	**Description**
Password	Change password for technical setup menu

Menu <**Serial interface**>

Menu item	**Description**
Serial interface	• Activate/deactivate interface, see chap. 9.4.2 • Set communication parameters, see chap. 9.4.2

Menu<**Date/time**>

Menu item	**Description**
Date/time	How to set date/time

Menu <**Network**>

Menu item	**Description**
network	Display IP address (only if balance is logged on to network)

Menu <**Database**>

Menu item	**Description**
Database	Export/import/delete database, which was populated using the control buttons  .

Menu <**Weighing data**>

Menu item	**Description**
Weighing data	All weighing data are saved automatically after pressing the PRINT key. The data can be exported or deleted with this function. Our optional software KERN SET 1.0 is available for viewing the data.

Menu <**Autoprint**>

Menu item	**Description**
Autoprint	• Activate/deactivate automatic print function. • Define output interval.

9.3 Overview <Operator setup>

Menu <**Functions**>

Menu item	**Description**
Functions	All functions with a tick  will be shown in the applications menu.

Menu <**Display**>

Menu item	**Description**
Display	• Set Operator language, see chap. 7.6.3 • Set screen brightness

Menu <**Messages**>

Menu item	**Description**
News	Each time a key is pressed, you will hear a short confirmation beep. This function can be activated/deactivated with a tick  .

Menu <**Autoprint**>

Menu item	**Description**
Autoprint	Application-specific settings for the automatic printing function. These menu items are only available when <Autoprint> is activated.

Menu <**Information**>

Menu item	**Description**
Information	Show IP address

English

9.4 Description of individual functions

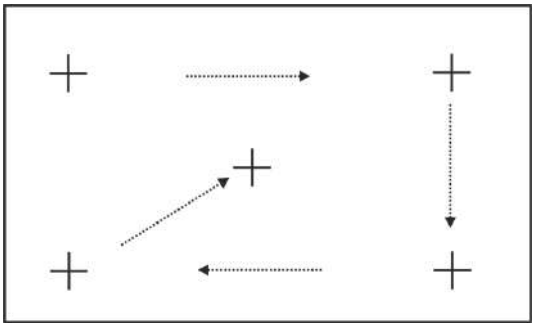
9.4.1 Set touch screen orientation

If the orientation of the touch-sensitive area does not match the positions of the control buttons on the display, it can be corrected by this function.

1

Tap **<Technical setup ➡ Screen ➡ Adjustment start>**.

2



Use a pen to touch the centre of the cross as accurately as possible.

Repeat this process for all the points.

- ☞ Be careful not to touch other areas of the display during adjustment.
- ☞ Do not touch the display with your hand.
- ☞ Adjustment cannot be exited.

9.4.2 Serial interface RS 232

Weighing data can be exchanged with peripheral devices (printer or PC) via the interface.
The following conditions must be met to provide successful communication between the weighing balance and an external device.

- ➢ Disconnect balance from the power supply and connect to the device interface with a suitable cable. Faultless operation requires an adequate KERN interface cable.
- ➢ The communication parameters of the RS 232 interface (baud rate, bits and parity) and the external device must be the same.

1

Tap **<Technical setup ➡ serial int. ➡ Com2>** .

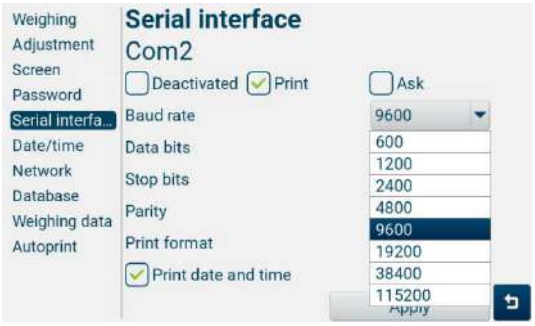
2

Press  to select the desired setting.

- **Disabled**
- **Print** (data output to optional printer)
- **Ask** (control of the balance via the KCP commands [KERN communication protocol])

Select <**Print**>

3



⇨ Select interface parameters by tapping on the pull-down menu.
⇨ Select print format <short> or <long>
(Printout examples see chap. 8.1.1)
⇨ Select print date/time.

4

Accept settings using control button Apply.

English

Selection <**Ask**>

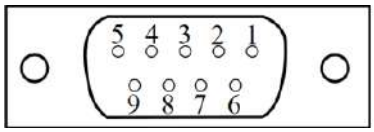
KCP (core communication protocol) contains the commands that are used to control the KERN GAT balance via the interface.

The following commands are supported:

I0	Send all implemented commands
I1	KCP status and version
I2	Balance data
I3	Software version
I5	Query SW ID number
S	Send stable value
SI	Send value immediately
SIR	Send value immediately and repeat
Z	Zeroing
ZI	Immediate zero reset
@	Cancel (reset)
D	Display
DW	Display weight value
K	Buttons: Set configuration
SR	Send weight value for weight change
T	Taring
MM	Enter the tare value (pretare)
TAC	Delete tare
TI	Tare now

- Finish commands with CR/LF character.
- Consult the KCP manual for more information, available on our KERN website (**www.kern-sohn.com**).

Pin connection:



Pin 2 input

Pin 3 output

Pin 5 signal earth

10 Application settings

All factory-set applications are shown in the applications menu. By tapping on a pictogram, the corresponding application window will be displayed.

However, the number of available applications can be adapted operator-specifically via <Operator setup ➡ Functions>.

1

⇨ Call up <Operator setup ➡ Functions>, see chap. 9.3
⇨ Select desired applications.

2

Only those applications confirmed with  will be shown in the applications selection.

English

10.1 Parts counting

"Parts counting" application allows you to count items with roughly the same item weight. Before the balance can count parts, it must know the average part weight (i.e. reference). The balance determines the total weight and divides it by the number of parts (the so-called reference quantity). Based on the calculated reference item weight, counting will follow next.
As a rule:
The higher the reference quantity the higher the counting exactness.

Open application:

1

Tap on the symbol  in the application selection.

2

The application-specific settings are displayed.

Retrieve/save counting article/reference item weight from/to the database, see chap. 10.1.2

Determine reference single weight by weighing. Number of reference items selectable (5, 10, 20)

Determine reference single weight by weighing
Number of reference items is operator defined

Enter known reference item weight as a numerical value

Count in to nominal value, see chap. 10.1.3.1

Delete reference weight

10.1.1 Simple item counting

Identify reference item weight:

Selection of reference item quantity 5, 10 or 20

1

Place as many pieces to add-up as required by the set reference piece number.

2

Tap on loaded reference item quantity (e.g. 

). The balance determines the weight of the reference item.
Remove reference weight.
The balance is now in parts counting mode counting all units on the weighing pan.

English

Selection operator-defined reference item quantity

1

Place as many pieces to add-up as required by the set reference piece number.

2

⇨ Tap nx

⇨ Enter number of reference items (e.g. 100 items) and accept with ↵

3

The balance determines the weight of the reference item.
Remove reference weight. The balance is now in parts counting mode counting all units on the weighing pan.

English

Enter known reference single weight as numeric value

1

Tap

2

Enter known reference weight and accept with

3

The reference item weight is displayed.
The balance is now in parts counting mode counting all units on the weighing pan.

The reference item weight remains stored until it is deleted with .

Carry out parts counting

After determining the reference, load the parts to be counted. The item number is calculated and displayed.

English

Return to weighing mode:

⇨ Tap either control button <START> or , or - key

10.1.2 Retrieve/save counting article/reference item weight from/to database

10.1.2.1 Creating a data record

1

Tap on the symbol

2

Create a new data record with

3

The following data can be saved for the data record:

- Name
- Known container weight
- Barcode
- Reference weight

4

Enter and accept with the name of the data record under <NEW Piece Counting>.

5

Enter pretare value and accept with ↵.

6

Enter barcode by hand and accept with ↵. Or scan in, if you have connected an optional bar code scanner.

7

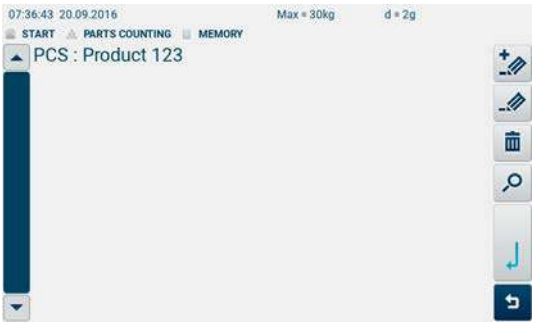
Either enter the known reference weight or accept the loaded weight as the reference with ⚖.

Accept input with ↵.

8

Save data record with ↵.

9



The saved data record is displayed in the list.

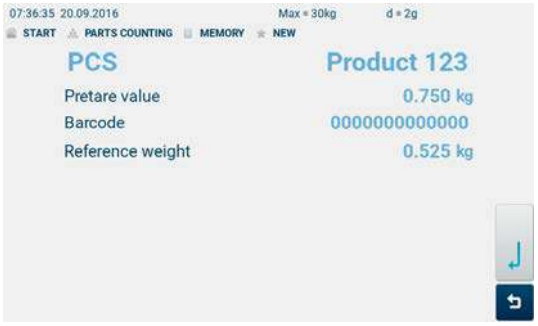
English

10.1.2.2 Edit data record

1

Mark data record and tap 

2



Data are displayed.
Tap on the data to be edited and accept changes with  .

10.1.2.3 Data record deletion

1

Mark data record and tap 

2

Confirm the query, the data record will be deleted

10.1.2.4 Retrieve data record/perform item count

1

If necessary search data record with  ,

mark data record and accept with  .

2

The counting procedure can be started now.

3

Load the items to be counted, the number of items will be calculated and displayed.

English

10.1.3 Fill to target

This function facilitates counting to a nominal value.
With the additional input of a ± tolerance, you can set the accuracy with which a count is performed (only supported for databases, see chap. 10.1.3.2).
The following description assumes that the reference for the item counting was already determined (see chap. 10.1.1 "Determine reference").

10.1.3.1 Count in to a nominal value

1

Tap  in item counting mode

2

Enter target item number and accept with 

3

Place weighed load on the balance and start counting. The capacity indicator facilitates weighing to the nominal value.

English

Sample display	State
	Number of items below the specified nominal value/tolerance
	Nominal value reached and within the tolerance specified
	Number of items exceeds the specified nominal value/tolerance

English

10.1.3.2 Save/retrieve the articles in the database

Create data record:

1

Tap symbol 

2

Create a new data record with 

3

The following data can be saved for the data record:

- Name
- Known container weight
- Barcode
- Reference weight
- Target value
- Tolerance

Enter data as described in chap. 10.1.2.1 beschrieben eingeben

- **Retrieve, delete or edit data record, see chap. 10.1.2**
- **Return to weighing mode, see chap. 10.1**

English

10.2 Tolerance weighing

With this application, you can check whether a weight value is within the specified tolerance limits. In addition weighing in can be to a specified nominal value/± tolerance [%].

Above or below the limit value is displayed with the indicators <**-**>, <**OK**> or < **+** >. The colour of the back light changes depending on loaded weight.

Open application:

1

Tap on the symbol  in the application selection.

2

The work window for tolerance weighing appears.

English

10.2.1 Tolerance weighing after setting an upper and lower limit value

A low and a high weight value must be entered. These weights and all weights that fall within this range are considered within the tolerance.

1

Tap on the symbol  .

2

Enter the lower limit value and accept with  .

3

Tap on the symbol  .

4

Enter upper limit value and accept with  .

5

Tare, as required, place the load on the weighing pan and start tolerance control.
The indicators <->, <OK>. < + > and the capacity indicator show the sample weight in relation to the tolerance limits.
You will hear a signal when the target value has been reached.

English

Sample display	State
	Weighed load too light
	Weighed load within set tolerance
	Weighed load too heavy

- The limit values will be saved until new values are defined
- To delete the limits tap on  .
- Return to weighing mode, see chap. 10.1

English

10.2.2 Weighing in to target weight/± tolerance

The target weight and a lower and upper tolerance [%] must be entered.

1

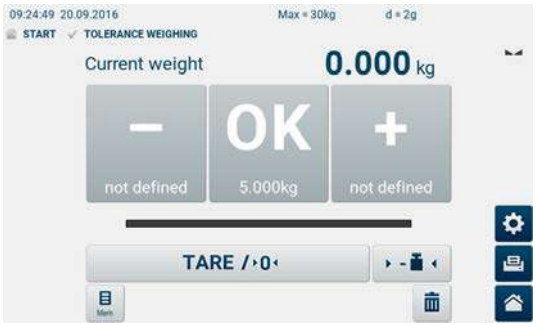
Tap on the symbol OK.

2

Either enter the numerical target weight or accept a loaded weight as the target weight with .

Accept input with .

3



Tap on the symbol –.

4

Enter lower tolerance and accept with .

5

Tap on the symbol +.

6

Enter upper tolerance and accept with .

English

7

Tare, as required, place the load on the weighing pan and start tolerance control.

8

The colour of the indicators <->, <OK> and <+> changes depending on the loaded weight. You will hear a signal when the target value has been reached.

- The target weight and the tolerances are saved until new values are calculated.
- Tap 🗑 to delete the values.
- Return to weighing mode, see chap. 10.1

English

Sample display	State
	Weighed load too light
	Weighed load within set tolerance
	Weighed load too heavy

- The limit values will be saved until new values are defined
- To delete the limit values s tap on  .
- Return to weighing mode, see chap. 10.1

10.2.3 Save/retrieve articles in the database

Create data record:

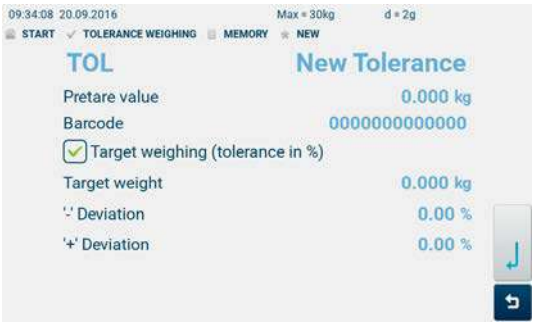
1

Tap on the symbol 

2

Create a new data record with 

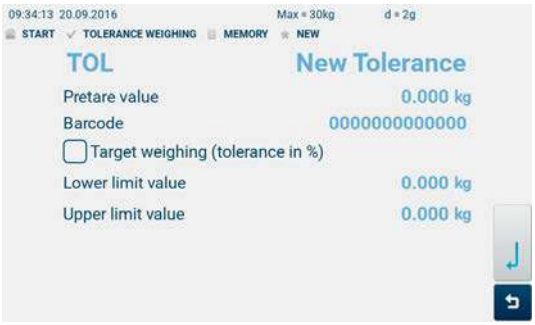
3



Select tolerance type:

 "Weighing in to target weight/± tolerance"

4



 "Tolerance weighing after setting an upper and lower limit value!".

⇨ Enter data as described in chap. 10.1.2.1

- **Retrieve, delete or edit data record, see chap. 10.1.2**
- **Return to weighing mode, see chap. 10.1**

English

10.3 Formulation

Complete recipes with all components and the corresponding parameters (e.g. description, tare weight, tolerances) can be saved in the database. When working through these recipes from the database, the balance will guide you step by step through the process of components weighing in.
The practical recalculation function automatically detects in case of an overbalanced component the new nominal weights of the other components.
The information column at the left edge of the display keeps you informed about the components already weighed in.

Open application:

1

Tap on the symbol  in the application selection.

2

The application-specific settings are displayed.

 Accept component

 Back to the previous component

 Open database

 Recalculation function

 Multiplication factor [%]

 Finish recipe

10.3.1 Creating a recipe in the database

1

Tap on the symbol 

2

Create a new recipe with  .

3

Under <Rec> und <NEW Recipe>

Enter Name/description of the data record

4

Accept input with  .

5

If required, enter pretare value and accept with 

6

If required, enter the barcode manually and accept with  . Or scan in, if you have connected an optional bar code scanner.

English

7

Enter the name and nominal weight for the first component and accept with ↵.

8

Enter ± tolerance in % and accept with ↵.

9

Select next component with FWD.

10

Enter name, nominal weight and tolerance for each additional component (see steps 7 - 9).

Save data record with ↵.

11

When all the components have been defined, save the recipe with ↵.

12

The saved data record is displayed in the list.

- **Edit data record or delete, see chap. 10.1.2**
- **Return to weighing mode, see chap. 10.1**

10.3.1.1 Process recipe from the database

1

Tap on the symbol 

2

If required, search for recipe with  , mark data record and accept with  .

3

The balance is ready for weighing the first component. Displays the name and the nominal weight.

If required tap on the multiplication factor  . The query as to which multiple volume [%] the recipe is to be created follows (e.g. double quantity = 200 %). The nominal weights of the components to be weighed will be adjusted accordingly.

4

Load the weighing containers corresponding to the pretare value.

Weigh the first component.

The capacity indicator facilitates weighing to the nominal value:

Weight of the component is below the desired weight/tolerance

Weight has reached the nominal weight and lies within the tolerances

Weight of the component is over the nominal weight/tolerance

English

5

Accept the attained nominal weight with

6

The balance is ready to weigh the second component.

Further components can be weighed as described for the first component.

7

After weighing the last component, the total weight and individual weights of the components can be printed out by connecting an optional printer (depending on the setting in the menu either automatically or after pressing ).

Finish recipe with  .

8

Confirm query.

A new recipe can be started (see step 1).

English

Recalculation function:

If a nominal weight is exceeded, press Recalc and the nominal weights of the other components are calculated proportionally to the exceeded weight value.

10.3.1.2 Log recipe

Printout example (KERN YKB-01N):

```
Product: Mi?Ho?Creme
14.09.2016  08:27

Milch. 0.250kg
Nominal Mass: 0.250kg
Difference:   0.000kg
------------------------------
Honig. 0.070kg
Nominal Mass: 0.070kg
Difference:   -0.000kg
------------------------------
Benzoe Oel. 0.002kg
Nominal Mass: 0.001kg
Difference:   0.002kg
------------------------------
Mandeloel. 0.320kg
Nominal Mass: 0.330kg
Difference:   -0.010kg
------------------------------
C: 0.642kg
```

English

10.4 TAKE OFF

With this function you can weigh defined portions of the large container.
With the additional input of a ± tolerance, you can set the accuracy with which the portions are to be weighed (only supported for databases, see chap. 10.4.2).

Open application:

1

Tap on the symbol  in the application selection.

2

There are five keys  available for frequently used portions.

10.4.1 Weighing using the quick keys

1

Choose quick key  and keep pressed until the input window appears.

2

Either enter the portion numerically or take over the loaded weight with  as portion.

Accept input with  .

3

Load large container and tare.

4

Remove the target weight for the portion.

5

Tare balance
If you connect an optional printer a printout will follow after each taring procedure (depending on menu setting, either

automatically or after pressing).

6

Remove further portions.

Printout example (KERN YKB-01N):

```
Product: TO1
N:         4.100kg
11:02   15/09/16
15.09.2016   10:38

Product: TO1
N:        -0.200kg
11:03   15/09/16
15.09.2016   10:38

Product: TO1
N:        -0.200kg
11:03   15/09/16
15.09.2016   10:38
```

English

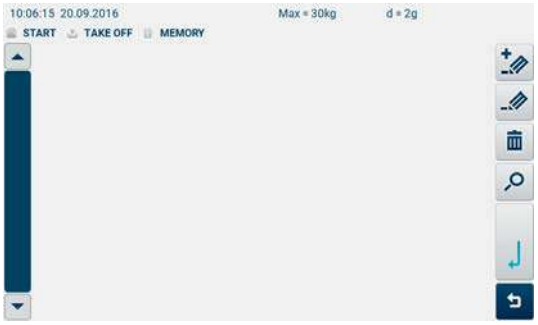
10.4.2 Save articles in the database

Create data record:

1

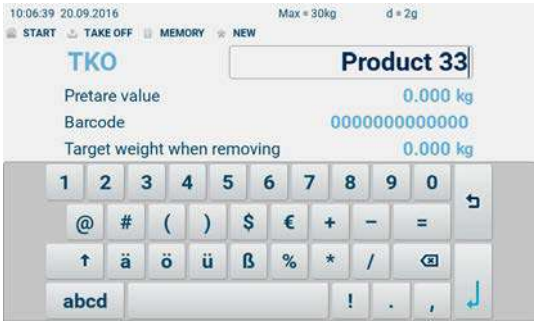
Tap on the symbol 

2



Create a new data record with 

3



Under <TKO> and <TO1> enter the name/description of the data record Accept input with  .

4

If required, enter pretare value and accept with 

5

If required, enter the barcode manually and accept with  .

Or scan in, if you have connected an optional bar code scanner.

6

Either enter "Target weight on removal" numerically or accept the loaded weight with  as target weight

Accept input with  .

English

7

Enter ± tolerance in % and accept with ↵

8

Save data record with ↵.

9

The saved data record is displayed in the list.

- **Retrieve, delete or edit data record, see chap. 10.1.2**
- **Return to weighing mode, see chap. 10.1**
- **Note:**
  Due to the drift of the balance, for a continuous load, the display value can change slowly over time.

English

10.5 Fill to target

This function facilitates counting to a nominal value.
With the additional input of a ± tolerance, you can set the accuracy with which a count is performed (only supported for databases, see chap. 10.1.3.2).

⇨ **Open application**

1

Either tap the symbol  in the applications menu.

or

call up the function via the "Item counting" application, see chap. 10.1.3

2

The application-specific settings are displayed.

Retrieve/save counting article/reference item weight from/to the database, see chap. 10.1.2

Determine reference single weight by weighing Number of reference items selectable (5, 10, 20)

Determine reference item weight by weighing Number of reference items is operator defined

Enter known reference item weight as a numerical value

Determine target parts quantity

Delete target number and reference weight

English

⇨ **Calculate reference item weight, see chap. 10.1.1**

⇨ **Set target item / weighing on a nominal value**

1

Tap on the symbol for the selected reference item weight.

2

Enter target item number and accept with ↵

3

Place weighed load on the balance and start counting. The capacity indicator facilitates weighing to the nominal value. Display example see chap. 10.1.3.1

⇨ **Save/invoke articles in the database, see. chap. 10.1.3.2**

⇨ **Printout example (KERN YKB-01N)**

```
Target count:  25pcs
Count:         25pcs
16.09.2016  07:40
```

English

10.6 Classification

This application can be used to classify identical objects in specified classes in accordance with their mass.
The info column to the left of the display tells you which class is currently loaded.

Open application:

1

Tap on the symbol in the application selection.

2

The window appears for the classification.

Create article in the database:

1

Tap on the symbol

2

Create a new data record with

English

3

Under <CLS> and <New Class>

Enter the name/description of the data record.

Accept input with ↵.

4

If required, enter pretare value and accept with ↵.

5

If required, enter the barcode manually and accept with ↵.

Or scan in, if you have connected an optional bar code scanner.

6

Enter the name for class A and accept with ↵.

7

Either enter lower limit value numerically or accept loaded weight as lower limit value with ⚖.

Accept input with ↵.

8

Either enter upper limit value numerically or accept loaded weight as upper limit value with ⚖.

Accept input with ↵.

English

9

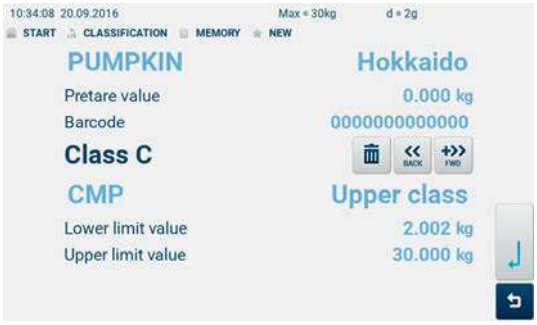
Select next class with FWD. Enter name for class B and accept with ↵.

10

Enter the lower and upper limit value as described for class A.

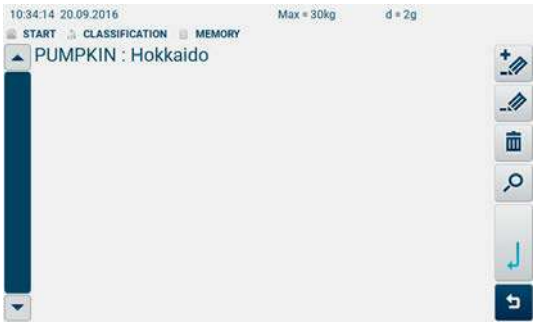
Enter further classes in the same way.

11



When all the classes have been defined, save the entries with ↵.

12



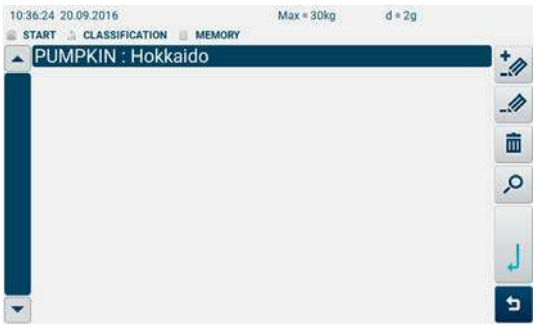
The saved data record is displayed in the list.

- **Edit data record or delete, see. chap. 10.1.2**
- **Return to weighing mode, see chap. 10.1**

English

Classify article:

1



If required search for the article with , mark and accept with .

2

The balance is ready for classification.

If required load the weighing containers corresponding to the pretare value.

3

Load the article. The class will be shown according to the loaded weight. If an optional printer has been connected, a measurement protocol is printed (depending on the setting in the menu either automatically or after pressing).

Printout example (KERN YKB-01N):

```
15.09.2016  09:29

Untere klasse
N:  0.990kg

15.09.2016  09:29

Mittlere Klasse
N:  1.390kg

15.09.2016  09:29

Mittlere Klasse
N:  1.890kg

15.09.2016  09:30

Oberste Klasse
N:  2.190kg
```

English

10.7 Totalization

With this application the individual weighing values are added into the summation memory by pressing a button and edited, when an optional printer is connected.

Open application:

1

Tap on the symbol Σ SUM in the application selection.

2

The work window for totalization appears.

Totalization:

1

If required place container and tare.

Place load A.

Wait for stability display, then press + . The weight value will be saved and printed if an optional printer is connected.

2

Remove the weighed good. More weighed goods can only be added when the display ≤ zero.

English

3

Place good to be weighed B.

Wait for stability display, then press [+]. The weight value will be saved and printed if an optional printer is connected.

4

Remove the weighed good. More weighed goods can only be added when the display ≤ zero.

⇨ Add more weighed goods as described before.
Please note that the balance must be unloaded between the individual weighing procedures.

⇨ Tap the [🗑] symbol to finish. The application switches back to the initial state.

Printout example (KERN YKB-01N):

```
16.09.2016  09:39

No.  1
N:  1.000kg
C:  1.000kg

No.  2
N:  2.000kg
C:  3.000kg

No.  3
N:  1.500kg
C:  4.500kg

<<<<<<<<<<<<
C:  4.500kg
```

- **Create, edit, retrieve, or delete articles in the database, see chap. 10.1.2**
- **Return to weighing mode, see chap. 10.1**

English

11 Servicing, maintenance, disposal

Before any maintenance, cleaning and repair work disconnect the appliance from the operating voltage.

11.1 Cleaning

Please do not use aggressive cleaning agents (solvents or similar agents), but a cloth dampened with mild soap suds. Ensure that no liquid penetrates into the device. Polish with a dry soft cloth.
Loose residue sample/powder can be removed carefully with a brush or manual vacuum cleaner.
Spilled weighing goods must be removed immediately.

11.2 Servicing, maintenance

⇨ The appliance may only be opened by trained service technicians who are authorized by KERN.

⇨ Before opening, disconnect from power supply.

11.3 Disposal

Disposal of packaging and appliance must be carried out by operator according to valid national or regional law of the location where the appliance is used.

12 Troubleshooting / error messages

Possible causes of errors:
In case of an error in the program process, briefly turn off the balance and disconnect from power supply. The weighing process must then restart from the beginning.

Help:

Fault	Possible cause
The displayed weight does not glow.	• The balance is not switched on. • The mains supply connection has been interrupted (mains cable not plugged in/faulty). • Power supply interrupted.
The displayed weight is permanently changing	• Draught/air movement • Table/floor vibrations • Weighing pan has contact with other objects. • Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)
The weighing result is obviously incorrect	• The display of the balance is not at zero • Adjustment is no longer correct. • The balance is on an uneven surface. • Great fluctuations in temperature. • Warm-up time was ignored. • Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)
No data transfer between printer and balance.	• Communication settings are wrong.

English

13 Installing display unit / weighing bridge

Installation / configuration of a weighing system must be carried out by a well acquainted specialist with the workings of weighing balances.

13.1 Technical data

Supply voltage:	12 V / 2500 mA
Max. signal voltage	0-10 mV
Zeroing range	0-2 mV
Sensitivity	2-3 mV/V
Resistance parameter	80 - 1200 Ω, Max. 8 Stück à 350 Ω Lastzelle

13.2 Weighing system design

The display unit is suitable for connection to any analogue platform in compliance with the required specifications.
The following data must be established before selecting a weighing cell:

- **Weighing balance capacity**
  This usually corresponds to the heaviest load to be weighed.
- **Preload**
  This corresponds to the total weight of all parts that are to be placed on the weighing cell such as upper part of platform, weighing pan etc.
- **Total zero setting range**
  This is composed of the start-up zero setting range (± 2%) and the zero setting range available to the user via the ZERO-key (2%). The total zero setting range equals therefore 4 % of the scale's capacity.

  The addition of weighing scales capacity, preload and the total zero setting range give the required capacity for the weighing cell.
  To avoid overloading of the weighing cell, include an additional safety margin.
- **Smallest desired display division**

13.3 How to connect the platform

⇨ Disconnect the display unit from the power supply.

⇨ Solder the individual leads of the load cell cable onto the circuit board. Anzeigegerät konfigurieren

13.4 Configure display unit

1

Press F or tap in the display to go to the menu selection.

2

Tap on **<Techncial setup>**, the password query will be displayed.

3

Enter the standard password <0000> or your personal password and confirm with ↵.

4

The available settings will be shown, see chap. 9.2

⇨ Adjustment is required after entering configuration data, see chap. 7.8.

English