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Operating and Installation Instructions Display Unit

KERN KEN-TM / KET-TAM

Version 3.0
11/2015
GB

KEN-TM / KET-TAM-BA-e-1530

GB

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Version 3.0 11/2015

Operating and installation instructions
Display unit

Contents

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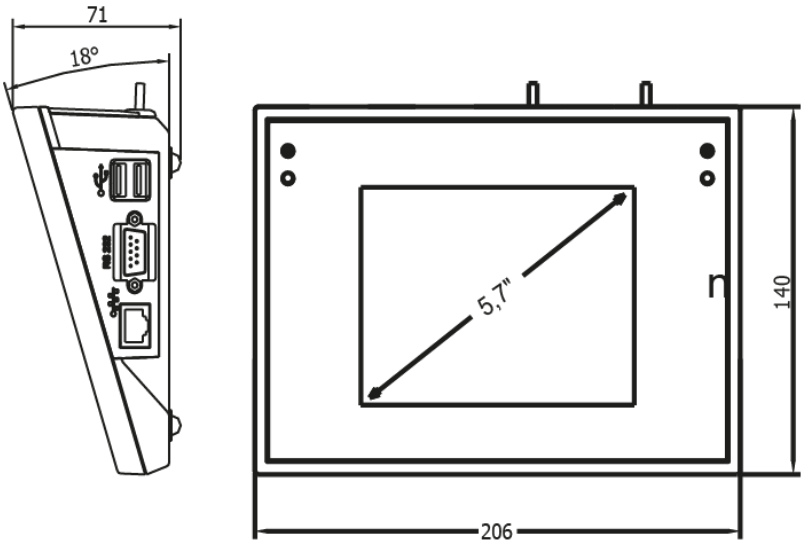
1 Technical data

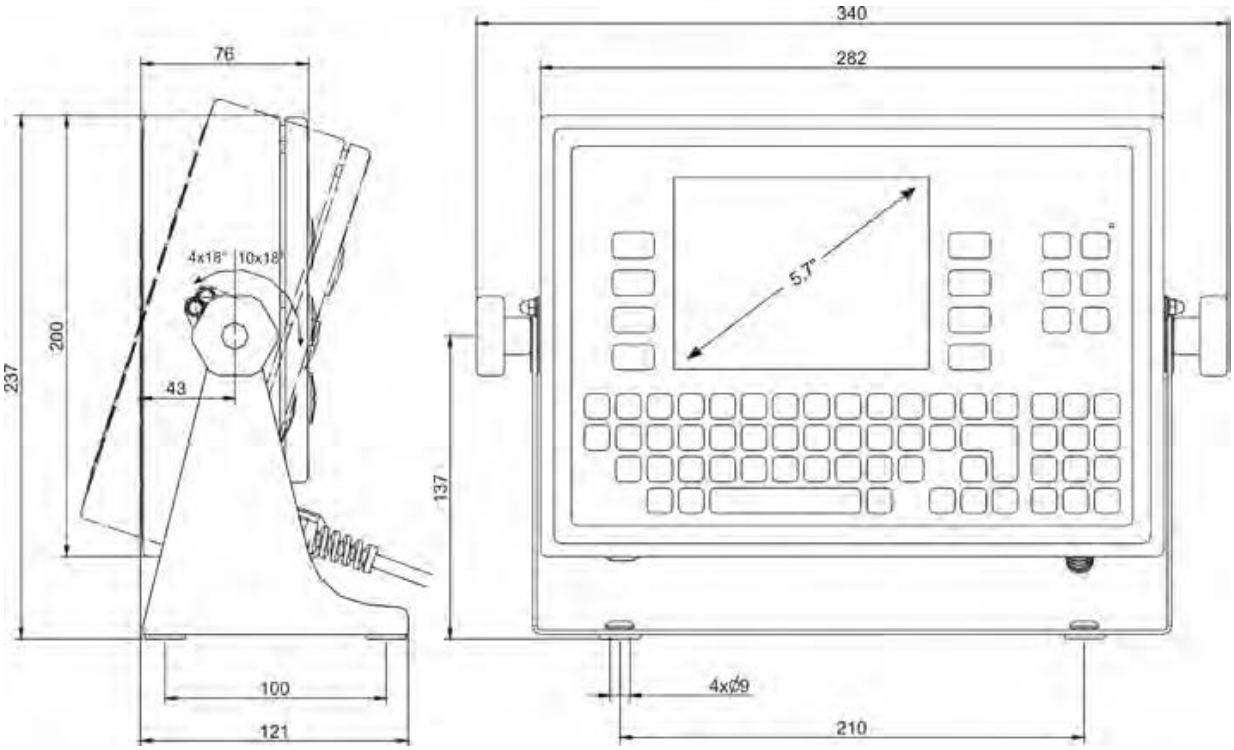
KERN	KET-TAM	KEN-TM
Display (segments)	7-digit	7-digit
Resolution (verified)	6000 e	6000 e
Resolution (non-verified)	100.000 d	100.000 d
Verification class	III	III
Weighing ranges	3	3
Divisions	1,2,5,…10n	1,2,5,…10n
Weighing Units	Models with type approval: g, kg	
	Models without type approval: g, kg, ct, lb, N, oz	
Display	Graphic LCD – Touch Height of digit small 19 mm Height of digit large 21 mm	
Housing material	Synthetic material	Stainlees steel
Dimensions case [mm]	215 x 156 x 71	282 x 200 x 76
Load cell resistance	min. 80 Ω	
	max. 1200 Ω	
Recommended adjustment weight	We recommend ≥ 50 % max.	
Admissible ambient temperature	-10° C to +40° C	
Humidity of air	30 ~ 80 % relative (not condensing)	
Input voltage – power unit	110 - 230 V AC	
Input voltage - device	15V 2.0A	110- 240 V AC 65 – 150 mA
Net weight	650 g	4.5 kg
Languages user interface	German, English, French, Italian, Polish, Rumanian, Spanish, Turkish, Czech, Hungarian see chap. 7.8.1	

1.1 Dimensions

KET-TAM:



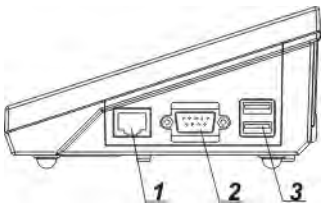
KEN-TM:

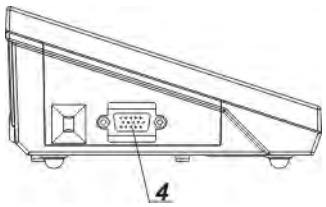


English

1.2 Anschlüsse / Schnittstellen

1.2.1 KET-TAM



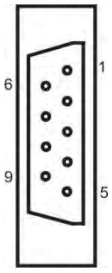


1. Ethernet
2. RS232 (COM1)
3. USB port

4. Digital I/O, RS232 (COM2)

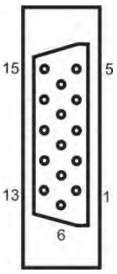
Pin allocation (front view):

- **RS232 DB9/M (9-pin plug)**



Pin2 - RxD
Pin3 - TxD
Pin5 - GND

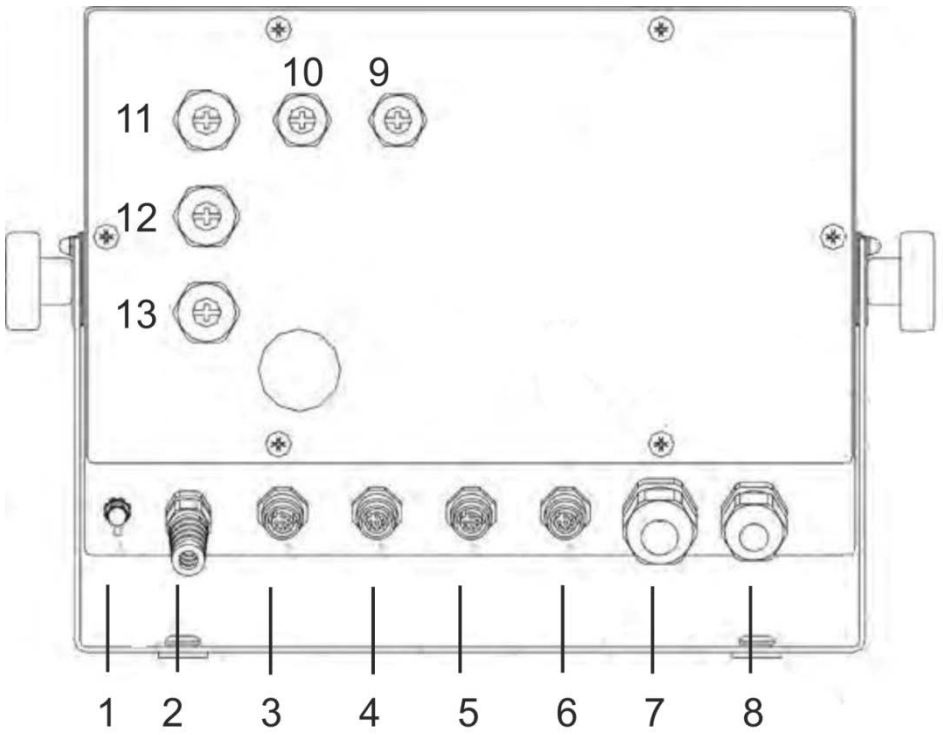
- **Digital I/O, RS232 DSUB15/F (15-pin socket)**
- **Configuration IN1 – IN4 / OUT1 – OUT 4, see chap.7.5**



Pin1 - GNDWE
Pin2 - OUT1
Pin3 - OUT2
Pin4 - COMM
Pin5 - 6÷9VDC
Pin6 - IN4
Pin7 - IN3
Pin8 - TxD2
Pin9 - 5VDC
Pin10 - GNDRS
Pin11 - IN2
Pin12 - IN1
Pin13 - RxD2
Pin14 - OUT4
Pin15 - OUT3

English

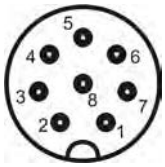
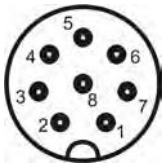
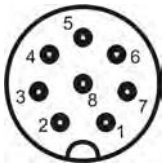
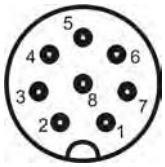
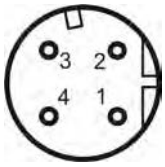
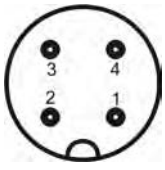
1.2.2 KEN-TM



1. Protective conductor
2. Electric Supply
3. Ethernet
4. 3IN/OUT
5. RS232
6. USB port
7. Peripherals (8IN/8OUT)
8. Platform 1
9. Add-on devices
10. Add-on devices
11. Platform 2
12. Platform 3
13. Platform 4

English

Pin allocation:

RS 232 / BUS Module (option)		Pin1 – B Pin2 – RxD Pin3 – TxD Pin4 – A Pin5 – GND Pin6 – +5VDC
Addition RS 232		Pin1 – NC Pin2 – RxD Pin3 – TxD Pin4 – NC Pin5 – GND Pin6 – +5VDC
3IN/OUT		Pin1 – OUT3 Pin2 – OUT2 Pin3 – OUT1 Pin4 – COMM Pin5 – IN3 Pin6 – IN2 Pin7 – IN1 Pin8 – GNDWE
4INPUTS		Pin1 – NC Pin2 – NC Pin3 – NC Pin4 – +24VDC Pin5 – IN3 Pin6 – IN2 Pin7 – IN1 Pin8 – IN4
Ethernet		Pin1 – Rx+ Pin2 – Tx+ Pin3 – Rx- Pin4 – Tx-
USB		Pin1 – Vcc Pin2 – D- Pin3 – D+ Pin4 – GND

Error-free operation is only guaranteed when using the optionally available KERN interface cables.

English

2 Control elements and program structure

2.1 Keyboard overview

Fig.: KET-TAM

Fig.: KEN-TM

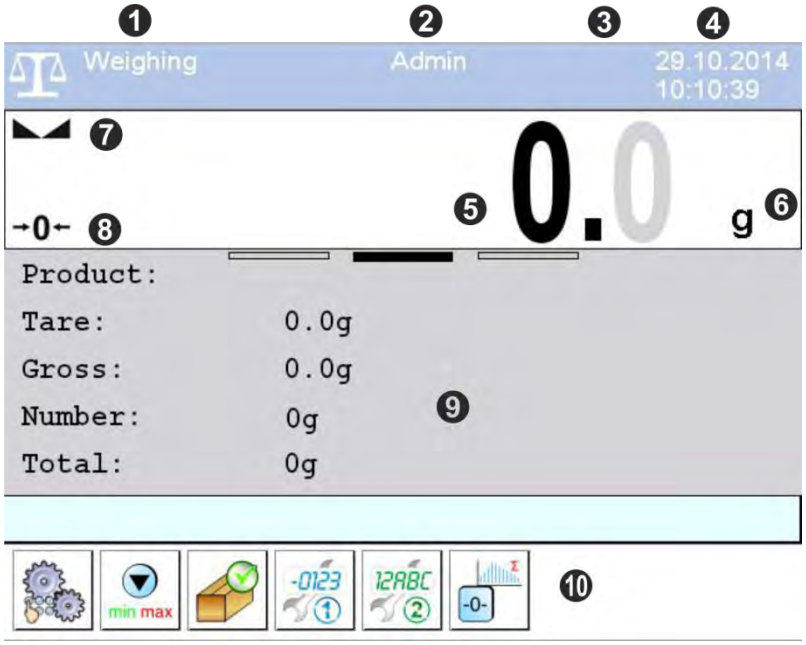
	KET-TAM	KEN-TM		
1		-	**Touch-free sensors.** Adjustable function, see chap. 7.4.2. Operate this function by moving your hand across the respective sensor. The sensor will confirm (if enabled in the menu see chap. 7.8.3) by sounding an audio signal that it has detected and executed a command. The sensors are supplied disabled by default.	
2	F1 ↓ F3	F1 ↓ F7	Shortcut key for frequently used applications, functions and settings Settings, see chap 7.4.2	
3	MENU		Call up menu	
4	STATUS LED Status display		OFF:	when instrument ready for operation
			ON:	When weighing scale is connected to power supply
			Flashing:	When operating system is loading
5	ON/OFF		Turn on/off	
6	→0←		Zeroing	
7	TARE		Taring	
8	PRINT	PRINT	• Issue weighing data • Confirm	
9	-	PRE TARE	Enter tare value numerically	
10	-		Change platform	
11	-	UNIT	Switch-over weighing unit	
12	-		Alphanumerical keyboard	

English

2.2 Overview of display

The coloured touch screen is a touch-sensitive display. The touch screen does not only display information, you can also enter orders, by tapping certain areas of the surface.

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



The display has four areas:

1. Range

❶ **Active application.**
Tapping the control button will call up a menu where you can select the desired application.

❷ **Logged-in user**
Tapping this control key will allow you to select additional users.

❸ **Active connection to PC**
Active connection to a PC is indicated by an icon.

❹ **Current date/time**
Tapping this button can be used to change date / time. For setting of display format see chap. 7.8.2

English

2. Range

❺ Current measuring value.
The non-calibrated part of weighing scales with type approval is highlighted.

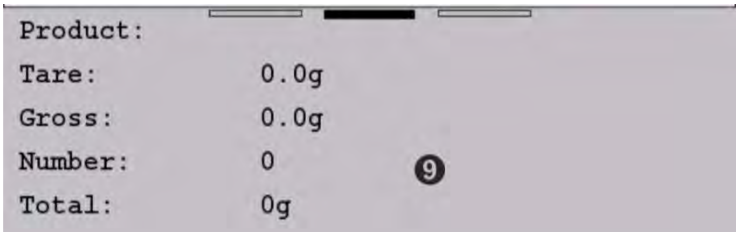
❻ Current weighing unit

To select an item from the menu, tap the button. (For definition of selection see chap. 7.7).

❼ Stability display
The stability display shows that the weighing value is stable.

❽ Zero indicator

3. Range



❾ Info field
This area shows additional information to the enabled application.
Tap this button to select which info fields and function keys [0] are to be shown, see chap.7.4.1.
The bar filled black at the upper margin shows the enabled info field.

For instance when the field in the centre is enabled
Settings, see chap 7.4.1

4. Range

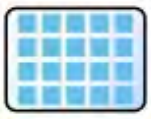
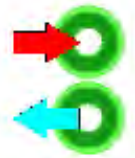
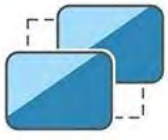
❿ Function keys
The function keys allow direct access to frequently required functions and settings in the enabled application. For defining function keys see chap. 7.4.2

English

2.3 Program structure

2.3.1 Menu overview

The menu is split into the following blocks:

 WEIGHING see chap. 7.1.	 DATABASES see chap. 14.	 REPORTS see chap. 15.
 WORKING MODES see chap. 8.	 COMMUNICATION see chap. 7.2.	 DEVICES see chap. 7.3.
 DISPLAY see chap. 7.4	 INPUTS / OUTPUTS see chap. 7.5	 ACCESS LEVELS see chap. 7.6
 UNITS see chap. 7.7.	 OTHERS see chap. 7.8	 CALIBRATION see chap. 7.9 only available for models without type approval
 INFO see chap. 7.11	 UPDATE Not documented	 REMOTE DESKTOP Not documented

To call up individual menu blocks and change their settings, tap the icons.

2.3.2 Navigation in the menu

Call up menu

Scroll forward in menu

Scroll backwards in menu

Scroll „down“.

Confirm entry, back to previous view

Cancel entry, back to previous view

Add position in database

Search date in database

Search name in database

Search code in database

Print position from database

Delete editing field

Hide / show keyboard

Import data from USB storage medium

Display menu showing all available variables

Display returns one step to previous view

Display returns directly to main window

English

Exit menu / back to weighing mode.

The display returns one step to previous view by tapping 

Press Back to Main Window  **repeatedly.**

or

⇨ In the upper bar and press  **once** and the device will return immediately to the start screen.

After returning to the previous view or the start screen all the changes you entered will be saved automatically.

English

2.4 Authorisation levels

The software is designed for users with different access rights:
Administrator and various users There is only one administrator.

- The administrator is allowed to use all the functions and has all access rights.
- A user, on the other hand, is not allowed to use all the functions and has limited rights, see table 1 below.

Tab. 1:

Authorisation level	Available rights and functions
Administrator	The administrator is allowed to use all the functions and has all access rights. There is only one administrator.
Advanced user	⇨ Start and carry out weighing. ⇨ Delete old data from database ⇨ Access the following functions: <Operating modes> <Profiles ➡ read-out> <Communication> <Devices> <Other> except <date / time>
User	⇨ Start and carry out weighing. ⇨ Define universal variables ⇨ Export weighing data ⇨ View data from database ⇨ Access the following functions: <Profiles ➡ read-out> <General parameters> except <date / time>
none	⇨ Carry out weighing. ⇨ No access to menu and database.

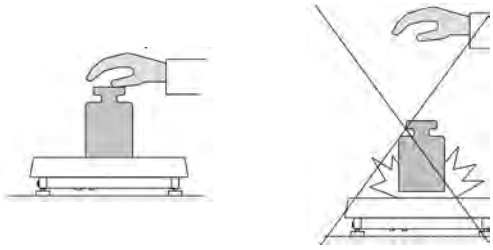
English

3 Basic instructions

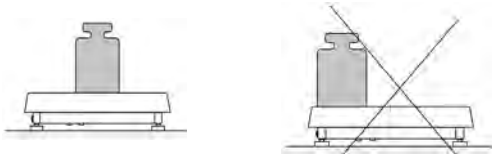
3.1 Proper use

The display unit acquired by you is used in combination with a load cell and serves to determine the weighing value of material to be weighed. It is not intended for use as non-automatic weighing system.

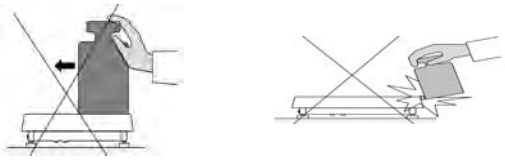
- Place load manually but carefully on weighing platform.
  Prevent loads from dropping.



- Place load in centre.



- Prevent lateral stress as well as pushing from the side.



- As soon as a stable weighing value is reached the weighing value can be read.

3.2 Improper Use

Do not use weighing system for dynamic weighing. In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the “stability compensation“ in the unit. (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 weighing plate, minus a possibly existing tare load, must be strictly avoided. Both, the weighing plate and the display unit may be damaged during this process.
Never operate display unit in explosive environment. The serial version is not explosion protected.
Changes to the display unit's design are not permitted. This may lead to incorrect weighing results, safety-related faults and destruction of the display unit.
The display unit may only be operated in accordance with the described default settings. Other areas of use must be released by KERN in writing.

3.3 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

3.4 Monitoring of Test Resources

In the framework of quality assurance the measuring-related properties of the display unit 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 display units’ test substances and the test weights required for this. In KERN’s accredited DKD calibration laboratory test weights and display units may be calibrated (return to the national standard) fast and at moderate cost.

4 Basic Safety Precautions

4.1 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.

⇨ All language versions contain a non-binding translation. The original German is binding.

4.2 Personnel training

The appliance may only be operated and maintained by trained personnel.

5 Transport and storage

5.1 Testing upon acceptance

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

5.2 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 against shifting and damage.

6 Unpacking, Setup and Commissioning

6.1 Installation Site, Location of Use

The display units are designed in a way that reliable weighing results are achieved in common conditions of use.
Precise and fast work is achieved by selecting the right place for your display unit and your weighing plate.
On the installation site observe the following:

- Place the weighing system 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 display unit and the weighing plate against direct draft from open windows or doors.
- Avoid jarring during weighing;
- Protect the display unit and the weighing plate against high humidity, vapours and dust.
- Do not expose the display unit 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.

Major display deviations (incorrect weighing results) may be experienced should electromagnetic fields (e.g. due to mobile phones or radio equipment), static electricity accumulations or instable power supply occur. Change location or remove source of interference.

6.2 Unpacking and placing

Take the display unit carefully out of its packaging, remove the plastic jacket and install it at the designated work space. Mount the display unit in a way that facilitates operation and where it is easy to see.

The display unit is not mounted rigidly on the weighing platform. If required, it may be placed independently within the vicinity of the weighing scale as long as the length of the cable allows such a setup.

6.3 Scope of delivery / serial accessories

KET-TAM	**KEN-TM**
Display Unit	Display unit with integrated power unit
Protective cover	Operating and Installation Instructions
Mains adapter	
IEC cable	
Ferrite core for cable shielding	
Operating and Installation Instructions	

6.4 How to connect the platform

See chap. 21 “Installing display unit / platform“.
Please also follow the instructions for installing a platform, as these contain all the details for the set-up and first start-up.

6.5 Mains connection

Power supply is achieved via external power units (KET-TAM only). The stated voltage value must be the same as the local voltage.
Only use original KERN mains adapters. Using other makes requires consent by KERN.

6.6 Commissioning

☞ **Connect scale to power supply.**

⇨ Connect display unit to power supply; the red status light will light up.

⇨ Press ON/OFF and the operating system will be loaded when the red status light is flashing.
Wait until the start screen followed by the user interface is displayed.

⇨ As soon as the weight display appears, the balance is ready for weighing. On delivery, the weighing scale will be in a logged-out status, that is, merely the simplest functions such as Weigh or Tare are enabled, see chap. 6.9.

To obtain full access to the user parameters and to the editing functions of databases, the user has to log on as administrator by following the steps below:

ℹ Later on, the last used user profile will be loaded on start-up.

☞ Log in

Tap **<Log in>** button.

<Operators> window appears.

The weighing scale is supplied without user profiles. To adjust all settings, the user has to register as administrator.

Tap **<Admin>** button.

English

☞ **Setting user language**

On delivery the display is set to German. For setting additional languages see chap.7.8.1.

Initial 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 weighing system must be connected to the power supply (mains, accumulator or battery).
To adapt the balance to ambient conditions, open wind screen doors.
The accuracy of the weighing system depends on the local acceleration of gravity.
Strictly observe hints in chapter Adjustment.

English

6.7 Log out

⇨ Tap logged-on user in the upper bar of the display.
This will bring up the <User> window.

⇨ Tap <log out> button 

6.8 Putting out of service / Standby mode

⇨ Press ON/OFF and tap desired option.

When selecting **<Stand by>** the weighing scale will be ready for operation. It is ready for operation immediately after start-up without requiring warm-up time.

When selecting **<Off>** you will have to restart the weighing scale as described in chap. 6.6 and observe the required warm-up time.

6.9 Basic Operation

☞ Stabilisation requires a certain warm-up time.

☞ For further information on specific setting options for the weighing application please refer to chap.8.2

6.9.1 Simple weighing

⇨ Check zero display [→0←] and set to zero with the help of →0←.

⇨ Place goods to be weighed on balance.

⇨ Wait until the stability display appears ( ).

⇨ Read weighing result.

To save and print the weighing value if an optional printer is connected, press PRINT
For data format see chap. 16.4

6.9.2 Zeroing

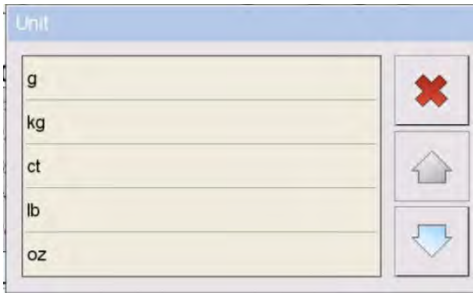
In order to obtain optimal weighing results, reset to zero the balance before weighing. Setting to zero requires a range ± 2% max. Values greater than ± 2% max will trigger the error message “Err2“.

⇨ Unload the balance

⇨ Press →0← and zero display as well as indicator →0← will appear.

6.9.3 Selecting weighing unit

Tap unit to select from the displayed menu.



Not all weighing units are available for weighing scales with type approval.

Unit	Designation	With type approval	Without type approval
Gram	[g]	yes	yes
Kilogram	[kg]	yes	yes
Carat	[ct]	yes	yes
Pound	[lb]	no	yes
Ounce	[oz]	no	yes
Newton	[N]	no	yes

For definition of start unit and user defined units see chap. 7.7.

6.9.4 Weighing with tare

➢ **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 weighing container on the weighing pan.

⇨ Wait until the stability display appears (▬), then press TARE. Zero display and indicator (**Net**) appear. The weight of the container is now internally saved.

⇨ Weigh the material.

⇨ Wait until the stability display appears (▬).

⇨ Read net weight.

- Tare weight can be allocated to a product in the database. Tare weight will be loaded automatically as soon as a product is selected.
- When the balance is unloaded the saved taring value is displayed with negative sign.
- Taring negative values is prohibited. The attempt of taring negative values will result in error message “Err 3“
- The taring process can be repeated any number of times. The limit is reached when the whole weighing range is exhausted.

➢ **Numeric entering of tara weight**

⇨ Press F3 or the the function key  (allocating function key, see chap. 7.4.2) and the numeric input window will appear.

⇨ Enter known tare weight and confirm by tapping  . The balance returns to weighing mode.
The entered weight will be saved as tare weight whereupon the indicator [**Net**] and the tare weight including minus sign will appear.

⇨ Place the filled weighing container.

⇨ Wait until the stability display appears **[▬]**.

⇨ Read net weight.

English

➢ **Delete tare**

1. Unload weighing plate and press →0←.
   The (**Net**) indicator turns off, the zero display shows.

2. When the weighing platform is loaded, you can only press →0← if the zero setting range is kept within 2% max (>2% max will generate error message “Err 2“).
   The (**Net**) indicator turns off, the zero display shows.

3. Press function key  **<Turn off tare>** when weighing platform is loaded (<2% max) or unloaded (For allocation of function key see chap.7.4.2. The (**Net**) indicator turns off, the zero display shows.

   If there is a function key allocated to **<Reset tare>**  , the most recently used tare value will be called up. (Allocation of function key, see chap. 7.4.2).

English

6.10 Connection of peripheral devices

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 peripheral devices by KERN, as they are ideally tuned to your balance.

7 System settings (menu)

The system settings are used to customise the behaviour of the weighing scales to your requirements (such as ambient conditions, special weighing processes).

- System settings apply to all user profiles and applications.
- To change settings, you have to select <Administrator> as user.
- Weighing scales with type approval offer access to all settings.

Call up system settings (menu):

☞ To open system settings, press 

and the options for system settings will appear, see chap. 2.3.1.

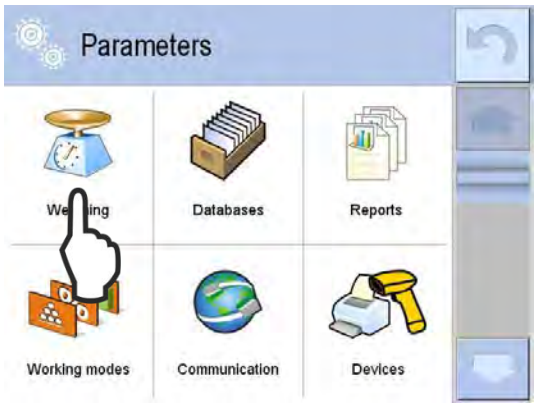
☞ Navigation in menu see chap. 2.3.2

English

7.1 Weighing

This function is used to customise the behaviour of the weighing scale to the ambient conditions of special requirements.

- Filter
- Confirm results
- Autozero
- Autozero: Dosing
- Last digit

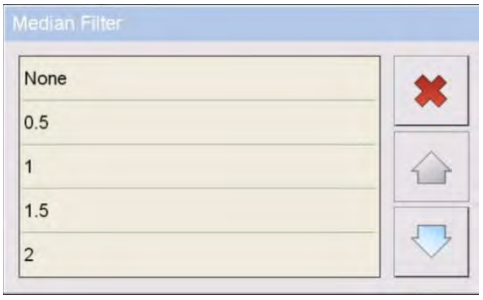


Tap **<Weighing>**.

To call up and change settings tap the icons.

7.1.1 Median filter

The median filter removes shocks such as mechanical vibrations.



Tap **<Medianfilter>**

The menu will appear.

Select desired setting.

7.1.2 Filter

This setting is used to customise the behaviour of the weighing scale to the ambient conditions.

Tap **<Filter>**

The menu will appear.

<very fast>

The balance reacts quickly and in a sensitive manner, quiet set-up location.

<slow>

The balance reacts slowly and in a robust manner, busy set-up location

Please note that in general slowing down reaction times result in higher stability of the set data handling, while speeding up reaction times have an influence on the stability deterioration.

English

7.1.3 Auto Zero

The automatic zero point adapter (auto zero) provides continuous correction for minor weight variations such as contamination on the weighing platform.
In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the “stability compensation“. (e.g. slow flow of liquids from a container placed on the balance, evaporating processes).
When apportioning involves small variations of weight, it is advisable to switch off this function.

Available settings:

- Auto zero disabled
- Auto zero enabled

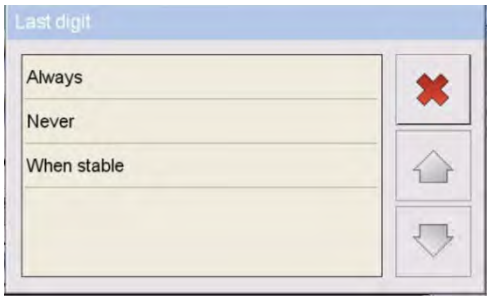
7.1.4 LO threshold

Entering threshold for automatic operation
The next measurement will not be saved until the weighing display falls below the net value set for the LO threshold.

Tap **<LO threshold>** and the numeric input window will appear.
Enter value and take over by .

7.1.5 Last digit display accuracy

Lower display accuracy results in faster display.



Tap **< Last digit >**

The menu will appear.

Always	All digits on
Never	Last digit off
When stable	Last digit on for stable weighing value

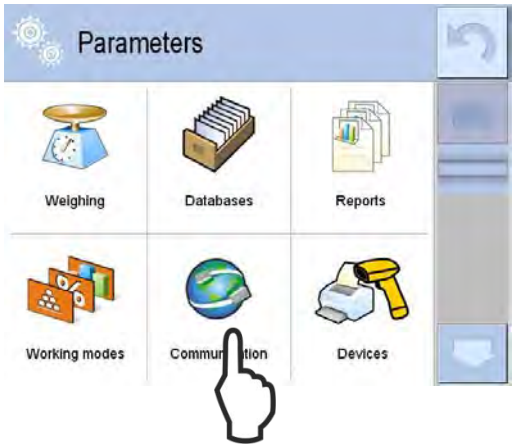
7.2 Communication parameters

Via the interfaces weighing data may be exchanged with connected peripheral devices. Connect balance using a suitable cable with the interface of the peripheral device. Error-free operation is only guaranteed when using the optionally available KERN interface cables.

Available interfaces (See image chap. 1.2)

- Ethernet
- RS232 (COM1)
- USB port
- Digital I/O, RS232 (COM2)
- WiFi (only KET-TAM)

All interfaces must be configured according to peripheral device and desired function.



Tap **<Communication>**.

Select interface to be configured.

English

7.2.1 RS232 (1) / RS232 (2)

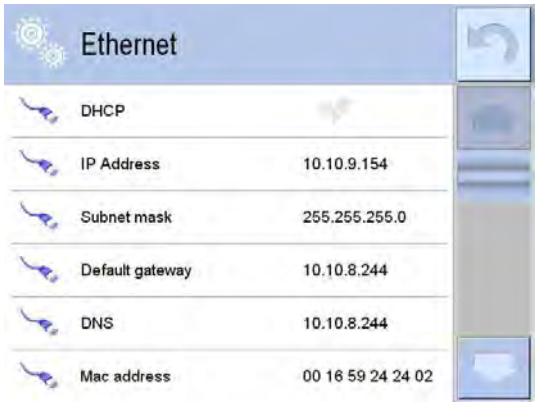
Tap **< RS232 (1) or RS232 (2)>**

Configuration options will be displayed.

Select setting.

The communication parameters of weighing scale and peripheral device must match.

7.2.2 Ethernet / IP



Tap **< Ethernet >**

The configuration options below will be displayed:

DHCP	✔ yes	✔ no
IP-address	Automatic	manual
Mask		
Gate		
DNS		
MAC address	Device specific (not editable)	

Transfer parameters have to be set according to local network.

The import of changes requires that you restart the device by .

7.2.3 TCP

Tap **<TCP>**

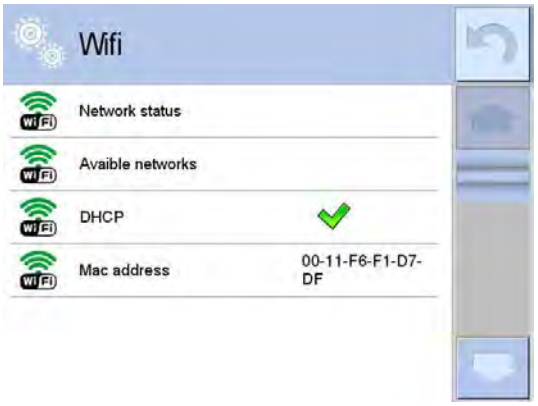
Set TCP-Port in input window.

Default value for KERN devices is “4001“.

English

7.2.4 WiFi (Only KET-TAM)

1. **DHCP** ✓ yes



2. **DHCP** ✓ no

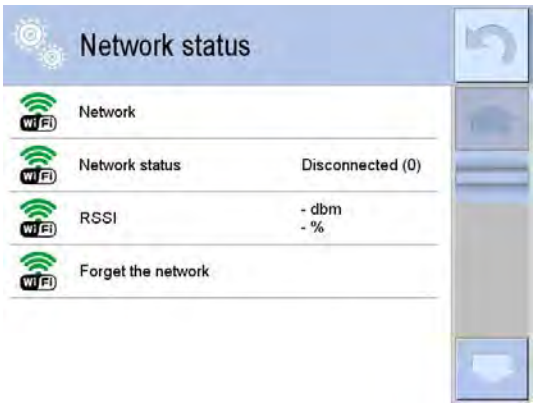
Select the item **<WiFi>**.

The selection list will be displayed:

DHCP	✓ yes	✓ no
IP address	automatically	manually
Mask		
Gate		
DNS		
MAC address	specific for the device (fixed)	

Transmission parameters shall be set according to the local network. Having accepted changes, restart the device pressing the button  .

1. Network status



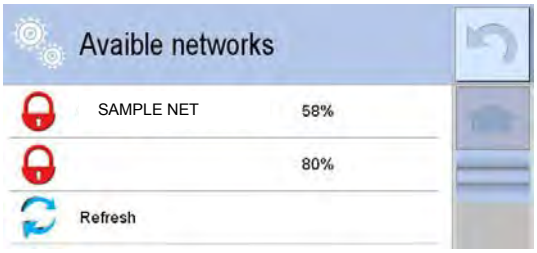
Select the item **<Network status>**.

The selection list will be displayed:

Name	**Value**	**Description**
Network	–	Network name (provided there is connection)
Network status	connected	No connection / connected
RSSI	- dbm - %	Signal strength
Delete network	–	Deleting

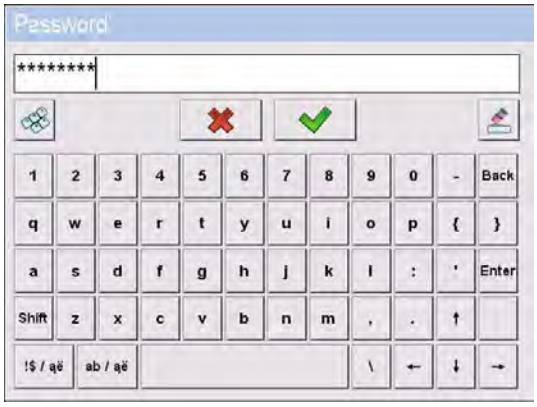
English

2. Available networks / Network selection



Select the item **< Available networks >**.

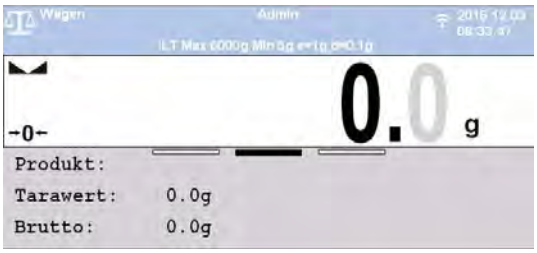
Select the network displayed or update the list selecting the item **<Refresh>**.



If necessary, enter the password and confirm it by pressing the button  .

Wait for the connection.

Confirm the network connection by pressing the button  .

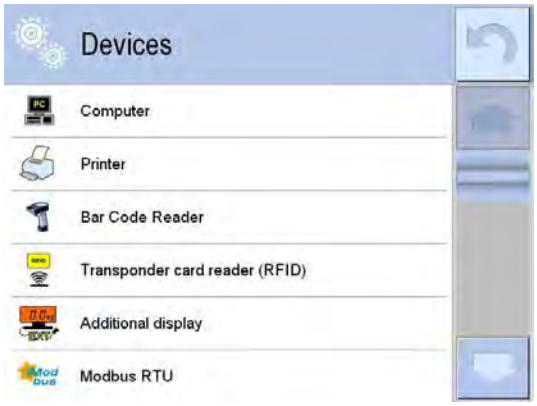


The symbol will be displayed in the work window.

English

7.3 Devices

Tap **<Devices>**.



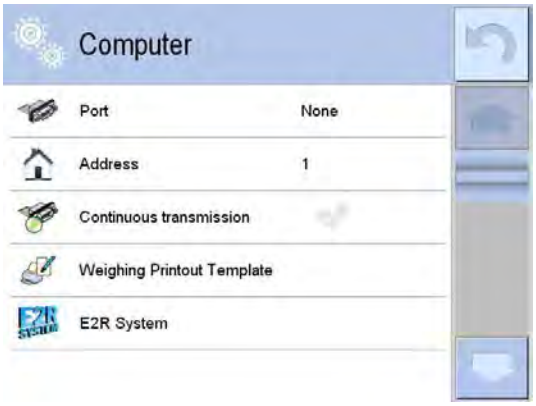
Select peripheral device to be configured.

English

7.3.1 PC

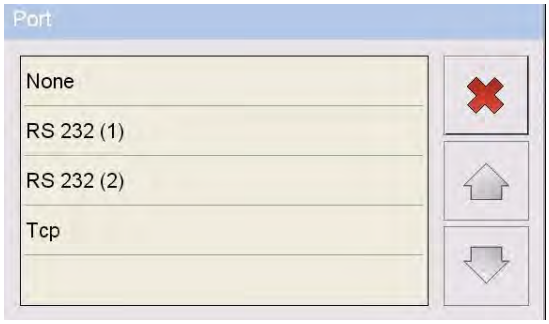
Select / configure computer interface

Tap **< Computer >**



Configuration options will be displayed.

3. Port



Tap **<Port>**.

The display will show the interfaces available for connecting the device to the computer.

4. Address

Tap **<Address>**.

Enter the desired address in the input window and confirm by tapping 

English

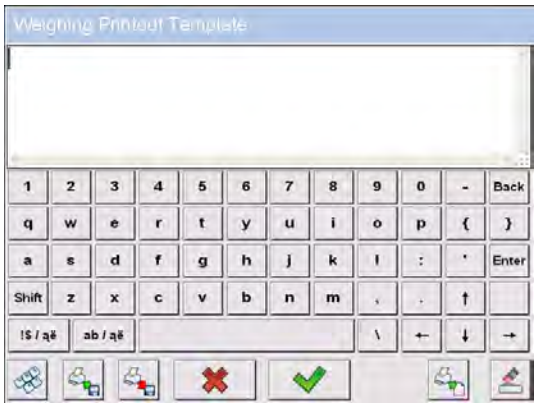
5. Continuous transmission

Setting options:

	no	Continuous data transmission disabled
	yes	Continuous data transmission enabled

6. Default log

This is used to determine which information is to be issued to the PC.



Tap **< Weighing Printout Template >** and the input window will appear. Enter texts and variables (For table see chap. 19) and import by tapping  .

- ⇨ Variables are to be presented in curly brackets {x}.
- ⇨ Tap  and the menu showing all variables will appear.
- ⇨ To enter line break tap <Enter>.
- ⇨ To hide the keyboard / zoom out the input window, tap 
- ⇨ To import a complete draft from an USB storage medium, tap 
- ⇨ To import a complete draft from an USB storage medium, tap 
  To delete the content in the editing field, tap 

7. E2R system

Tap **< E2R System >**.

The settings
<System enabled> /
<Product selection blocked> are blocked by default.

These settings may only be modified by the manufacturer!

Setting options:

no	System disabled
yes	System active.

The following icons are displayed on the upper screen bar when the functions are enabled:

E2R System	System active
	Active connection to PC software

English

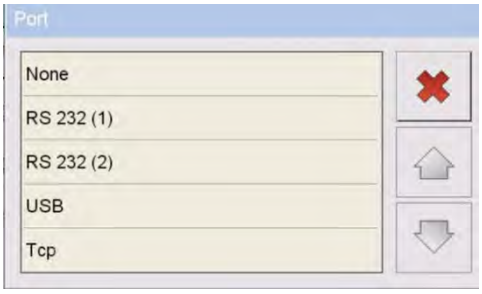
7.3.2 Printer

Selecting / configuring printer interface

Tap **< Printer >**

Configuration options will be displayed.

1. Port



Tap **<Port>**.

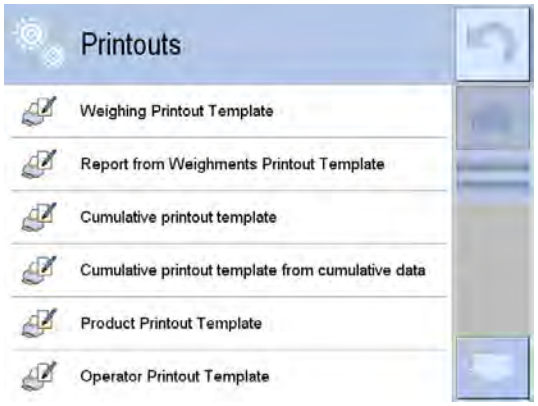
The display will show the interfaces available for connecting the device to the computer.

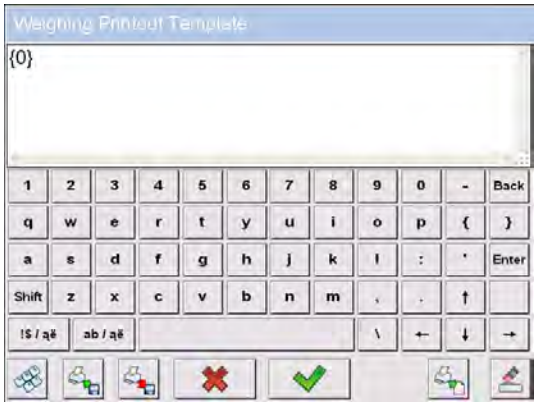
2. Code

Tap **<Code>**.

Enter desired value in input window and confirm by tapping 

3. Defining logs





Display example:
Default log “Weighing“

Tap **<Printouts>**.

Select log type (such as weighing printout sample), and the input window will appear. Enter texts and variables (For variables menu see chap. 19) and import by tapping .

⇨ Variables are to be presented in curly brackets {x}.

⇨ Finish each line by tapping “ Enter“

⇨ Tap and the menu showing all variables will appear.

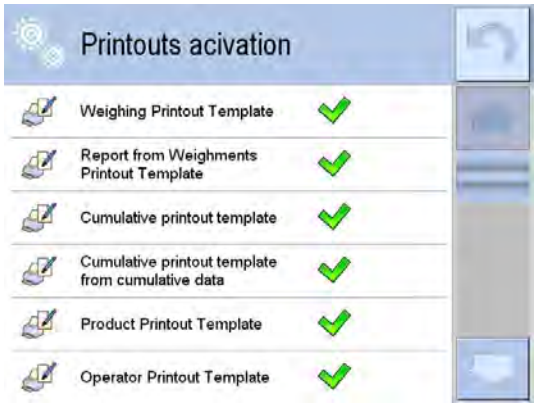
⇨ To enter line break tap <Enter>.

⇨ To hide the keyboard / zoom out the input window, tap

⇨ To import a complete draft from an USB storage medium, tap

⇨ To delete the content in the editing field, tap .

4. Enabling printouts



Tap **< Printouts activation >**.

enabled

disabled

English

7.3.3 Barcode scanner

Select / configure interface

The barcode scanner allows fast access to:

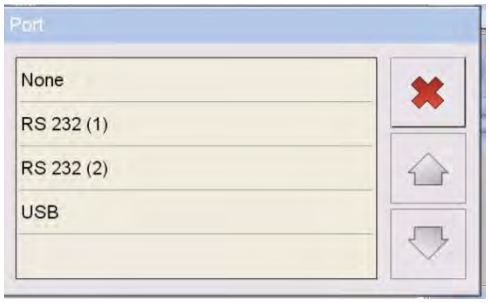
- Product
- Customer
- Packaging
- Bearing
- Dispensing processes
- Recipe
- Components of recipe
- Universal variables
- Serial number
- Batch number

Ensure that communication parameters of weighing scale (standard 9600 baud) and barcode scanner match.

Tap **< Bar Code Reader >**

Configuration options will be displayed.

1. Port



Tap **<Port>**.

The available interfaces will be displayed.

2. Prefix / suffix

Tap **< Prefix / Suffix >**.

Enter values (hexadecimal) for prefix / suffix in input window and import by tapping  .

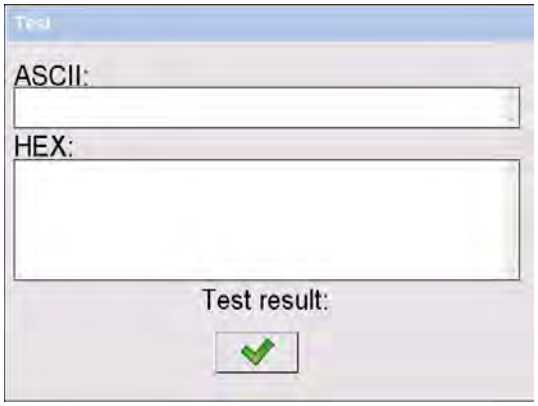
3. Field selection

Tap **< Field selection >**.

To call up and change settings tap the icons.

English

4. Test

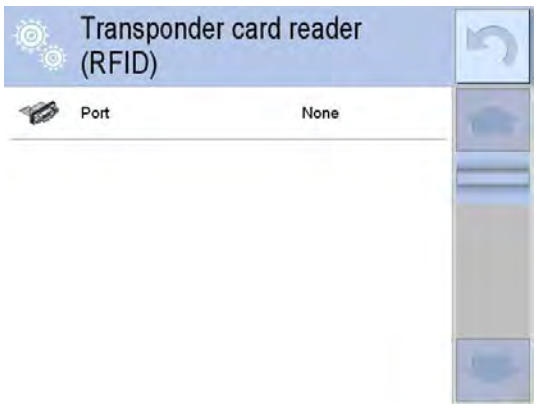


Tap **< Test >**.

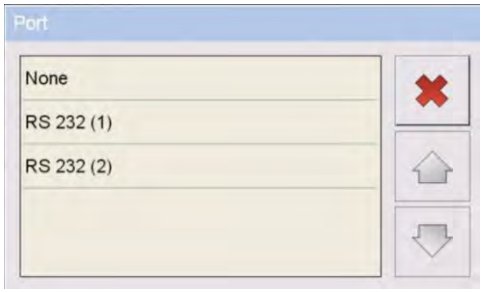
Check error-free functioning of barcode scanner.

7.3.4 Transponder card reader

Select / configure interface



Tap **< Transponder card reader >**



Tap **<Port>**.

The available interfaces will be displayed.

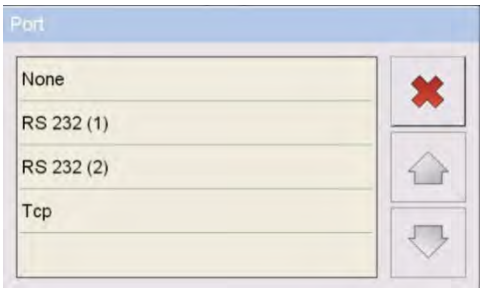
Ensure that communication parameters of weighing scale (standard 9600 baud) and transponder card reader match.

English

7.3.5 Additional display

Tap **< Additional display >**

1. Port



Tap **<Port>**.

The available interfaces will be displayed.

2. Sample

Tap **<Sample>**.

The input window used to define the communication log will appear.

Factory settings:

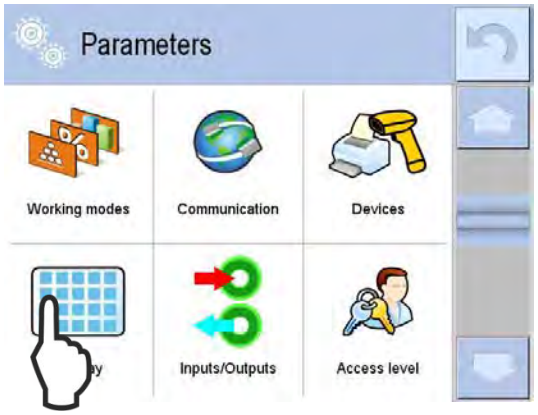
{141} KERN KET-A03

{142} KERN KET-A06

English

7.4 Configure display

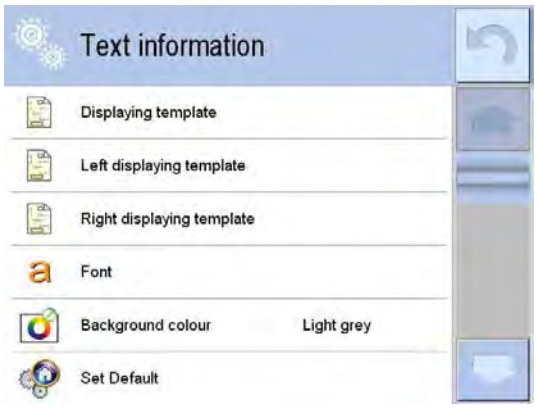
This function allows the user to customise the terminal to his/her requirements.



Tap **< Display >**.

The available parameters will be displayed.

7.4.1 Select information texts



Tap **< Text information >**.

To call up and change settings tap the icons.

	Main display sample (middle)	Select information texts in info field The info field is displayed in the application below the weighing value in the form of a grey field. This section also shows additional information to the enabled application. It is possible to create 3 separate info fields. To change between fields, use a swiping movement with your hand.
	Left display sample	
	Right display sample	
	To enter the information text, tap the desired field and the input window will appear. Enter texts and variables (For table see chap. 19.1) and import by tapping  . For default settings see table 2 below: ⇨ Variables are to be presented in curly brackets {x}. ⇨ Tap  and the menu showing all variables will appear. ⇨ To enter line break tap <Enter>. ⇨ To hide the keyboard / zoom out the input window, tap  ⇨ To import a complete draft from an USB storage medium, tap  ⇨ To import a complete draft from an USB storage medium, tap  To delete the content in the editing field, tap  .	
	Font	Font
	Font style	Character font available: Arial, Courier
	Font size	Font size options small, normal, large.
	Grease, lubricant	Font style “Bold“	 **yes**  **no**
	Font tilt	Font style “Italic“	 **yes**  **no**
	Font colour	Font colour for text information at the working area, 18 colour options
	Background colour	Colour display for display screen, 18 colour options
	Set default	Reset to default setting

English

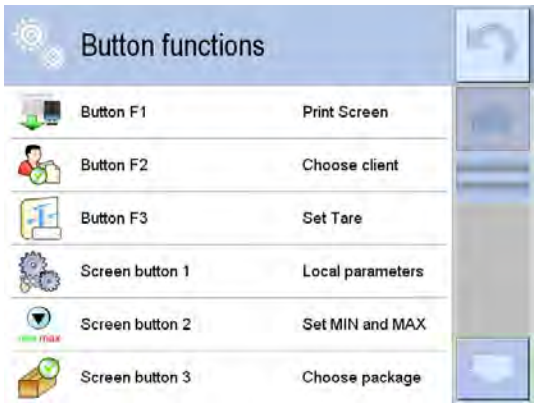
Table 2: Default settings “information texts“

Weighing:	{40:Product:,-15}{50} {40:Tare:,-15}{9}{11} {40:Gross:,-15}{8}{11} {40:Quantity:,-15}{15} {40:Total:,-15}{16}{11}
Parts counting:	{40:Product:,-15}{50} {40:Mass of reference weight:,-15}{35}{11} {40:Net:,-15}{7}{11} {40:Tare:,-15}{9}{11}
Percent determination:	{40:Product:,-15}{50} {40:Mass of reference weight:,-15}{36}{11} {40:Net:,-15}{7}{11} {40:Tare:,-15}{9}{11}
Dosing:	Dosiervorgang: {175}
Formulation:	{220} {40:Ingredient:,-12}{230}/{231}[{226}] {40:Dose:,-12}{228}{11}/{227}{11} {40:Batch:,-12}{232}/{233} {40:Designed:,-12}{225:F0}
Density:	Product: {50}
Animal weighing:	{40:Tare:,-15}{9}{11} {40:Gross:,-15}{8}{11}
FPVO	Product: {50} Code: {51}

English

7.4.2 Selecting function keys

Function keys allow direct access to frequently used functions and settings of the enabled application. They are displayed on the application at the lower margin of the display.



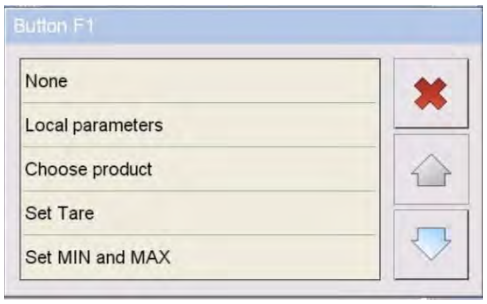
Tap **< Button functions >**.

Menu will appear:

- Keys F1 – F3
- Display keys 1- 9
- Touch free sensors, left / right (KET-TAM only)

Use the cursor  to scroll forward or backward.

The numbers of the display keys determine the order on the display.



Tap desired key.

The menu will appear.
For default settings see table 3 below:

Use the cursor  to scroll forward or backward.

Selection is imported by tapping. The display returns to the previous screen.

English

Table 3: Default settings “function keys“

Weighing:		F1-key	Search product
		F2-key	Select customer
		F3-key	Set tare
		Screen key 1	Application specific settings
		Screen key 2	Set limit values MIN and MAX for control weighing
		Screen key 3	Select packaging
		Screen key 4	Edit serial number
		Screen key 5	Edit batch number
		Screen key 6	Statistics Z: Zeroing
Parts counting:		F1-key	Search product
		F2-key	Select customer
		F3-key	Set tare
		Screen key 1	Application specific settings
		Screen key 2	Select packaging
		Screen key 3	Enter reference single weight numerically
		Screen key 4	Determine reference single weight by weighing
		Screen key 5	Allocate reference single weight
Percent determination:		F1-key	Search product
		F2-key	Select customer
		F3-key	Set tare
		Screen key 1	Application specific settings
		Screen key 2	Select packaging
		Screen key 3	Enter reference weight (100%) as numeric value
		Screen key 4	Determine reference weight (100%) by weighing
Dosing:		F1-key	Select dispensing
		F2-key	Select customer
		F3-key	Set tare
		Screen key 1	Application specific settings

English

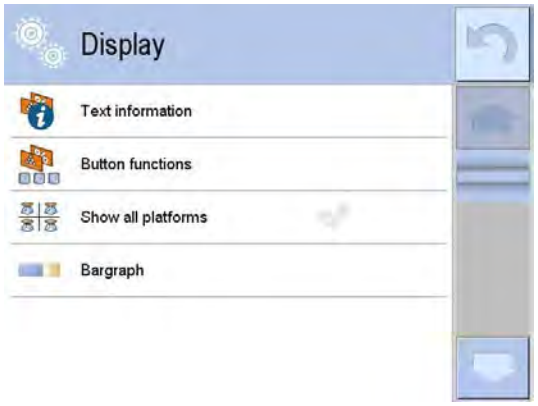
		Screen key 2	Select dispensing
		Screen key 3	Start
		Screen key 4	Stop
		Screen key 5	Failure
Formulation:		F1-key	Select recipe
		F2-key	Select customer
		F3-key	Set tare
		Screen key 1	Application specific settings
		Screen key 2	Select recipe
		Screen key 3	Start recipe
		Screen key 4	Stop recipe
		Screen key 5	Select component from recipe menu
		Screen key 6	Select previous component of recipe
		Screen key 7	Select next recipe
		Screen key 8	Enter weight manually
		Screen key 9	Edit serial number of component
Determination of density:		F1-key	Search product
		F2-key	Select customer
		F3-key	Set tare
		Screen key 1	Application specific settings
		Screen key 2	Determine density of liquid
		Screen key 3	Determine density of solids
		Screen key 4	Stop
Animal weighing:		F1-key	Search product
		F2-key	Select customer
		F3-key	Set tare
		Screen key 1	Local parameters
		Screen key 2	Start

English

7.4.3 Display all platforms

When used as weighing system with several platforms, the display for each platform can be switched as follows:

For assigning switching option to function key or sensor, see chap. 7.4.2.
or
Enable function <Show all platforms> as described below:

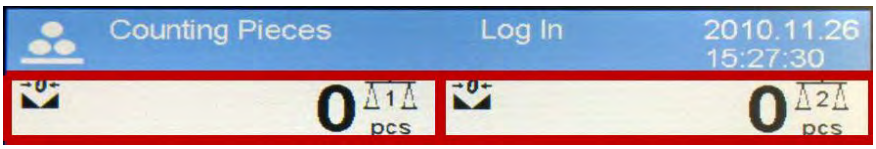


Tap **< Show all platforms >**.

- no

- yes

All platforms will be displayed when this function is enabled.
To edit the desired platform, tap it.



English

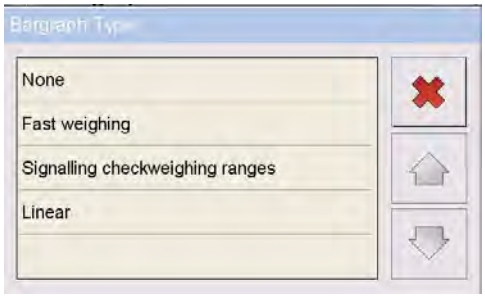
7.4.4 Select bargraph type

Tap **< Bargraph >**.

The available bargraph types will be displayed:

- None – bargraph is not displayed
- Fast weighing
- Pilot light settings
- Linearity

1. Bargraph type



Tap **< Bargraph Type >**.

Select type of your choice to be displayed.

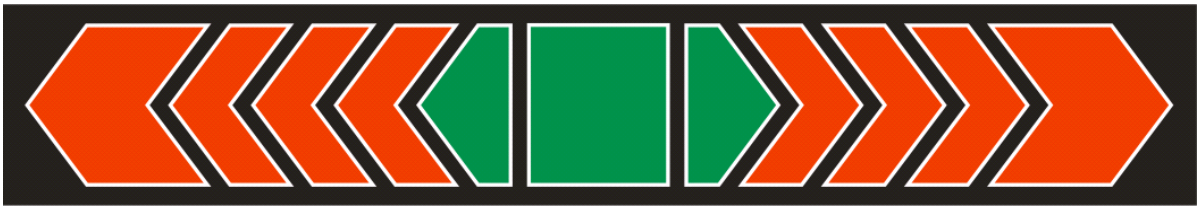
English

2. Fast weighing

Function:

Eight red and three green pilot lights indicate whether the load is within the tolerance limits (MIN / MAX threshold).

The signal lights provide the following information:



The **red** pilot lights **on the left** indicate that the target weight is below the lower tolerance limit (MIN threshold). The lower the weight value below the MIN threshold the more red arrows will light up on the left.	The **green** pilot lights indicate that the target weight is within the tolerance range (OK threshold).	The **red** pilot lights **on the right** indicate that the target weight is above the upper tolerance limit (MAX threshold). The greater the weight value above the MAX threshold, the more red arrows will light up on the right.
	 < 1/3 MIN-MAX range	
	 > 1/3 and 2/3 MIN-MAX range	
	 > 2/3 MIN-MAX range	

Settings:

Tap **< Fast weighing >**.

The menu will be displayed; see table 4 below.

Tab. 4:

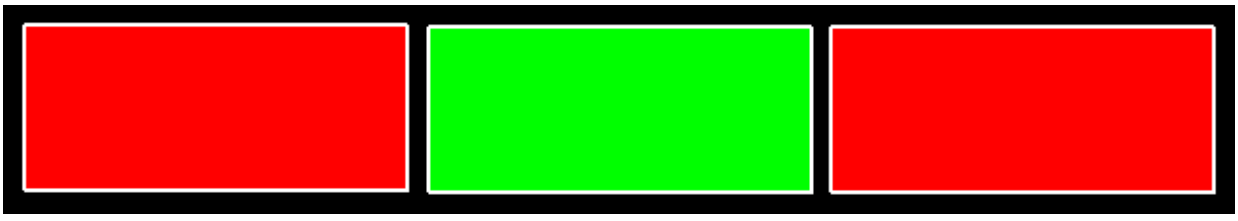
	Operating mode for thresholds MIN, MAX	**Stable** – pilot light for thresholds MIN, MAX will be visible after exceeding the LO threshold and after reaching a stable weighing result; **Unstable** – pilot light for thresholds MIN / MAX will be visible after exceeding the LO threshold.
	Operating mode of OK threshold	**Stable** – pilot light for threshold OK will be visible after exceeding the LO threshold and after reaching a stable weighing result; **Unstable** – pilot light for threshold OK will be visible after exceeding the LO threshold
	Pilot light colour for MIN threshold	Select pilot light colour for threshold MIN, 18 colour options available
	Pilot light threshold for OK threshold	Select pilot light threshold for threshold OK, 18 colour options available
	Pilot light colour for MAX threshold	Select pilot light threshold for threshold MAX, 18 colour options available.
	Gradient	Turn on / turn off filling flow for type “Gradient“.
	Background colour	Select background colour for bargraph, 18 colour options available.
	Frame colour	Select frame colour for bargraph, 18 colour options available.

English

3. Pilot light setting (checkweighing)

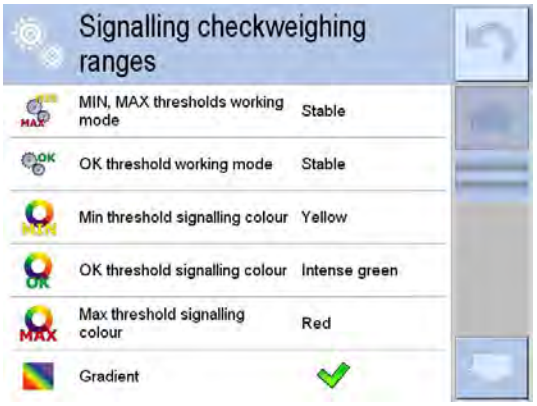
Three colour pilot lights indicate whether the load is within the tolerance limits (MIN / MAX threshold).

The signal lights provide the following information:



Target weight below lower tolerance limit (MIN threshold)	Target weight within tolerance range (OK threshold)	Target weight above upper tolerance limit (MAX threshold)

Settings:



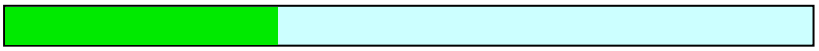
Tap **< Signalling checkweighing ranges >**.

Menu will appear, see table. 4.

4. Linearity

Function:

The bargraph display moves from the left to the right and proceeds equally to the weight loaded onto the weighing balance. Its full width is reached at maximum load.



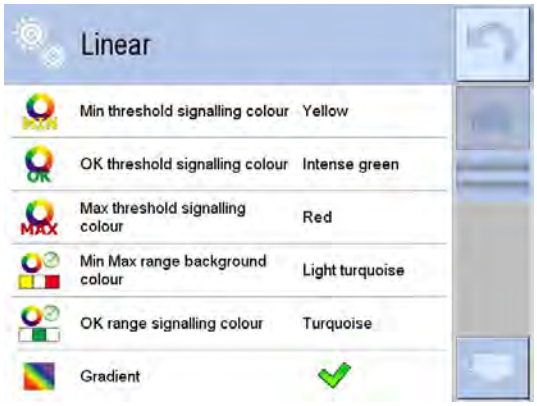
For tolerance controls such as dosaging, apportioning or sorting the balance will display violated upper or lower limits vie the bargraph display. The analogue bargraph display (length of displayed bars) indicates where the weight of the weighed goods comes in the tolerance range. The tolerance range is always standardised between target value and limit values (Min / MAX threshold) so that it corresponds to the bar length of the bargraph.

- Target weight below lower tolerance limit (MIN threshold):

- Target weight within tolerance range (OK threshold):

- Target weight above upper tolerance limit (MAX threshold):

Settings:



Tap **< Linear >**.

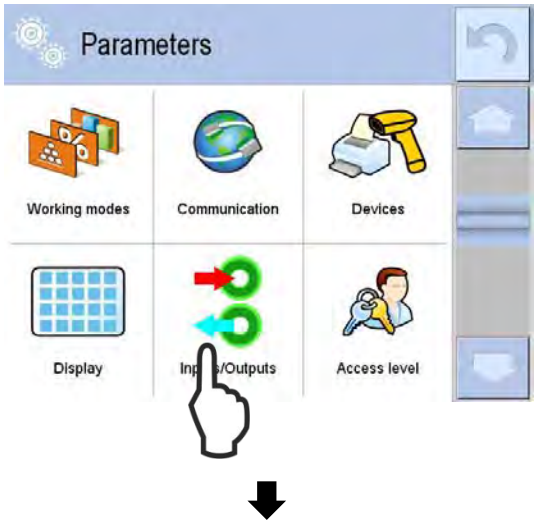
Menu will appear, see table. 5.

Tab. 5:

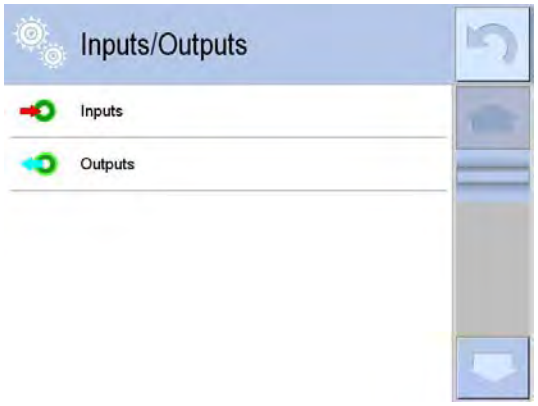
	Pilot light colour for MIN threshold	Select pilot light colour for threshold MIN, 18 colour options available
	Pilot light threshold for OK threshold	Select pilot light threshold for threshold OK, 18 colour options available
	Pilot light colour for MAX threshold	Select pilot light threshold for threshold MAX, 18 colour options available.
	Gradient	Turn on / turn off filling flow for type “Gradient“.
	Background colour of OK range	Select background colour for OK range on bargraph, 18 colour options available.
	Frame colour	Select frame colour for bargraph, 18 colour options available.

English

7.5 I/O settings



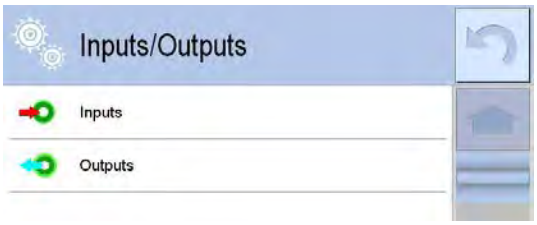
Tap **< Inputs / Outputs >**.



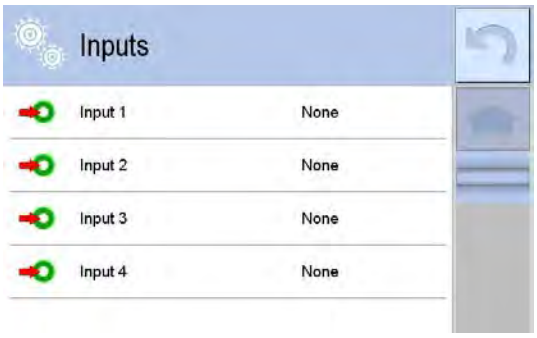
English

7.5.1 Inputs

For pin allocation IN1 – IN4, see chap. 1.2



Tap **< Inputs >**.



Select input to configure
(IN1 – IN4).

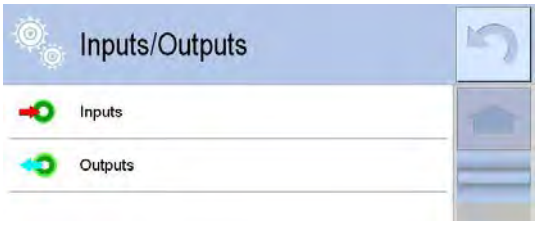
Default settings of all inputs: **<none>.**

Select action to be carried out on enabling selected input.

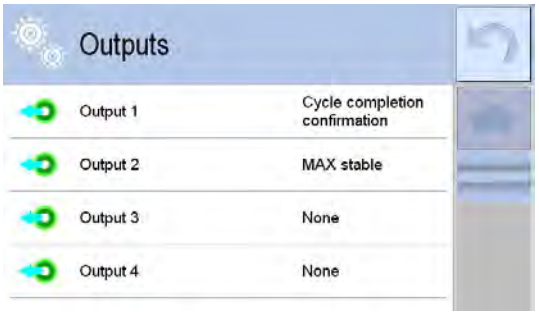
English

7.5.2 Outputs

For pin allocation OUT1 – OUT4, see chap. 1.2



Tap **< Outputs >**.



Select output to configure (OUT1 – OUT4).

The default setting for all parameters is <none>.

Select event that is to trigger enabling of output, see table below. 6.

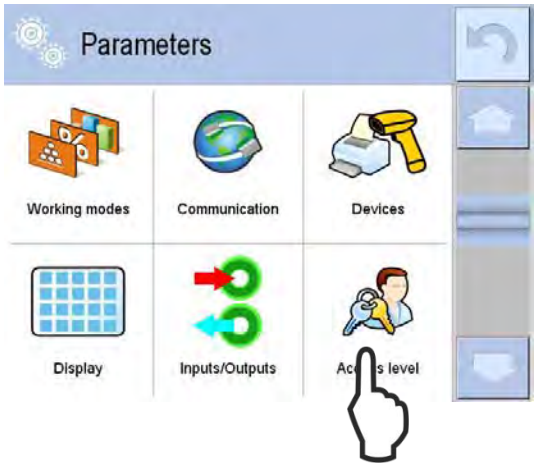
Tab. 6:

No	Output disabled
Stable	Stable weighing value above LO weight
MIN stable	Stable weighing value below threshold MIN
MIN unstable	Unstable weighing value below threshold MIN
OK stable	Stable weighing value between thresholds MIN and MAX
OK unstable	Unstable weighing value between thresholds MIN and MAX
MAX stable	Stable weighing value above threshold MAX
MAX unstable	Unstable weighing value above threshold MAX
Zero	Stable weighing value zero net
Cycle end confirmation	Confirmation signal for cycle completion of dispensing
Zero	Zero weighing result (character “zero“)
! OK unstable	Unstable weighing value outside OK threshold
! OK stable	Stable weighing value outside OK threshold

7.6 Authorisations

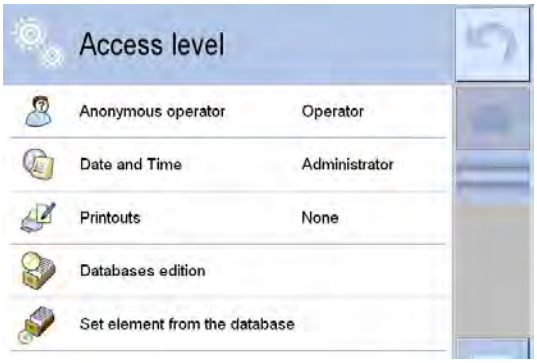
Function <Access Level> is only available when you are logged on as <Administrator>.

This function is used by the administrator (See chap.2.4 / Table. 1) to set protection for certain functions individually and to grant rights to a user of the weighing scale who is not logged on (“anonymous user“).

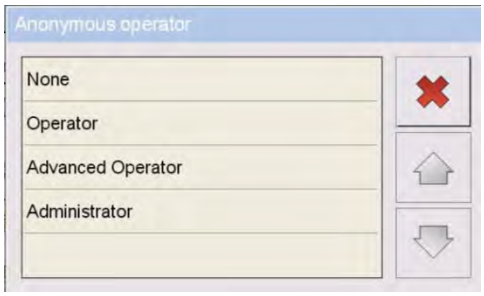


Tap **< Access level >**.

1. **Anonymous user**
   This function is used to grant rights to a user of the weighing scale who is not logged on.



Tap **<Anonymous operator>**



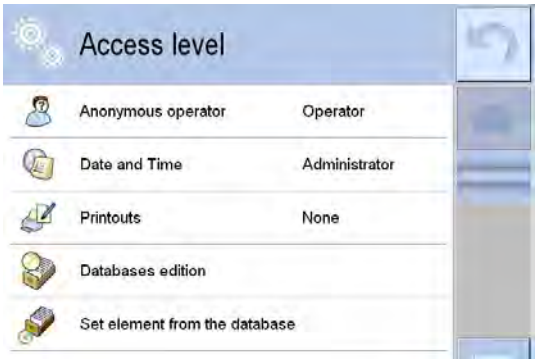
The menu will appear.

For available rights and functions of the respective option, see chap.2.4 / table. 1

English

2. Date and time

This function is used to grant the user access to <Date and Time>.



Tap **< Date and time >**

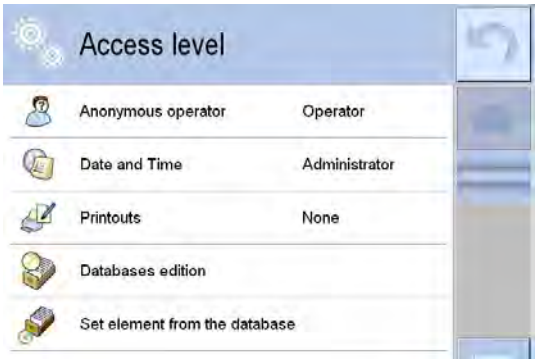
The menu will appear.

Select users who are to be granted rights of access.

For available rights and functions of the respective option, see chap.2.4 / table 1

3. Print document

This function is used to grant the user right of access to define logs.



Tap **<Printouts>**

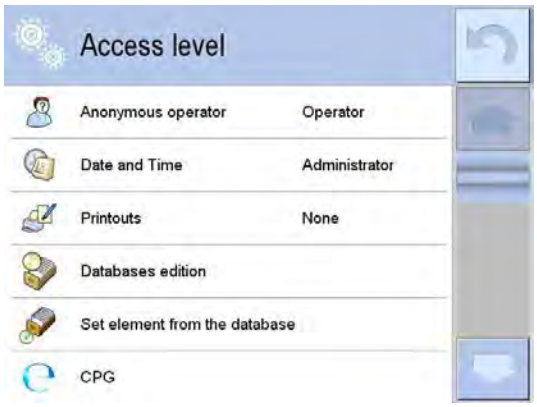
Select users who are to be granted rights of access.

For available rights and functions of the respective option, see chap.2.4 / table 1

Selecting **<none>** results in free access to the function.

4. Editing database

This function is used to grant rights that are supposed to be available to the user for editing the respective database.



Tap **< Database edition >**

Select database for which right of access is to be granted.

Select access level.

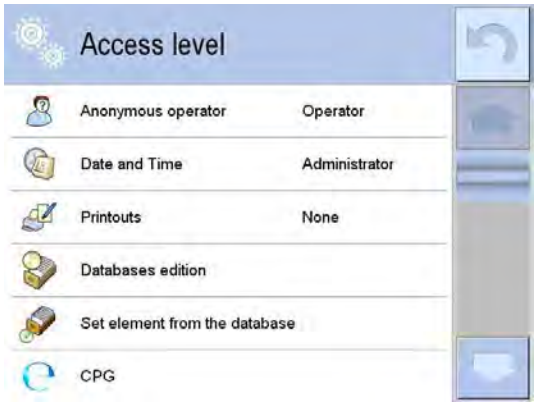
For available rights and functions of the respective option, see chap.2.4 / table 1

Selecting <**none**> results in free access to the function.

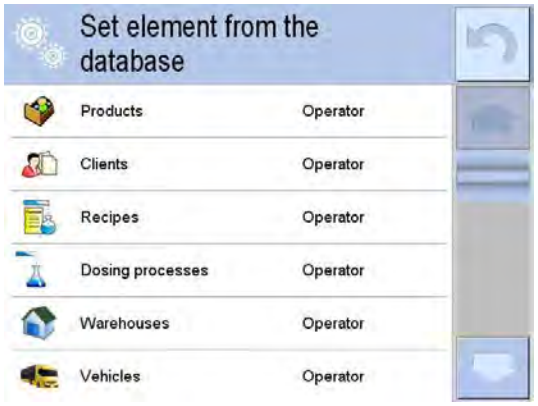
English

5. Select database

This function is used to grant rights that are to be available to the user for viewing the respective database.



Tap **< Set element from the database >**



Select database for which right of access is to be granted.

Select access level.

For available rights and functions of the respective option, see chap.2.4 / table. 1

Selecting <**none**> results in free access to the function.

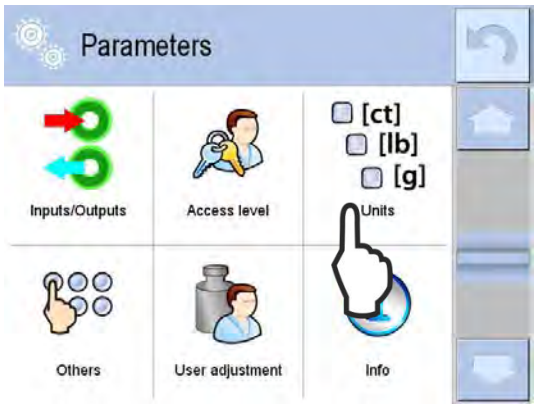
6. FPVO

Not documented

[ct]
[lb]
[g]

7.7 Weighing Units

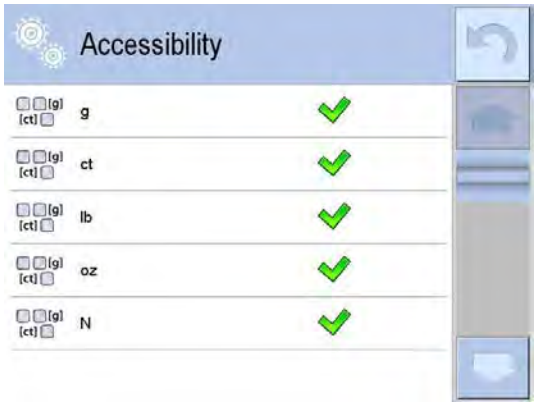
This function is used to determine which weighing units are to be used for the operation of the weighing scale.



Tap **< Units >**.

To call up and change settings tap the icons.

1. **Unit switch over**
   This function is used to set the units into which the weighing result can be switched to, see chap.2.2. [❻].



Tap **< Accessibility >**.

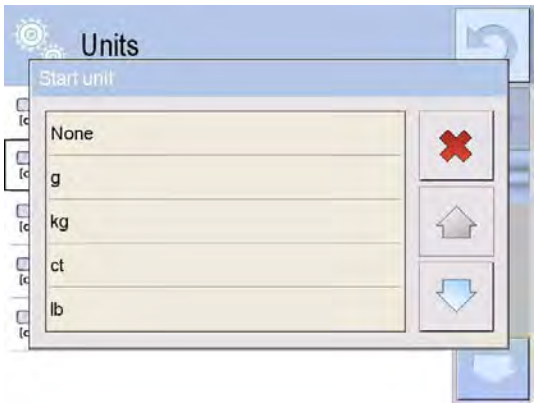
Weighing unit activated

Weighing unit deactivated

English

2. Starting unit

This function is used to set the unit to be displayed when the weighing scale is started.



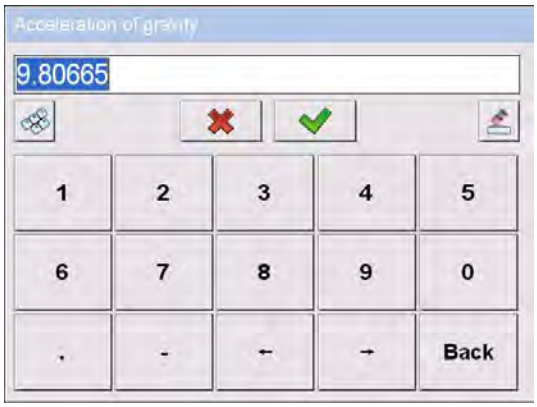
Tap **< Start unit >**.

Select desired starting unit.

The selected unit will be displayed after a restart.

Not all units are available for weighing scales with type approval.

3. Gravitational acceleration

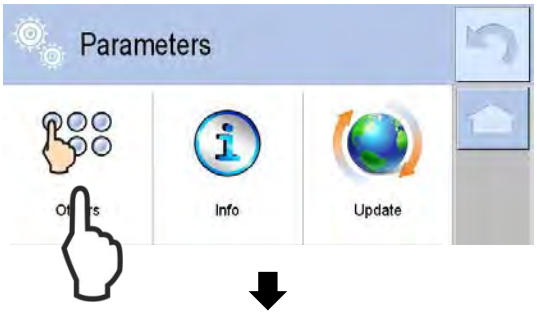


Tap **< Acceleration of gravity >**.

Enter local gravitations constant in input window.

7.8 General parameters

This is used to set parameters influencing the operation of the weighing scale, such as user language, date / time display, key level, brightness of display etc.

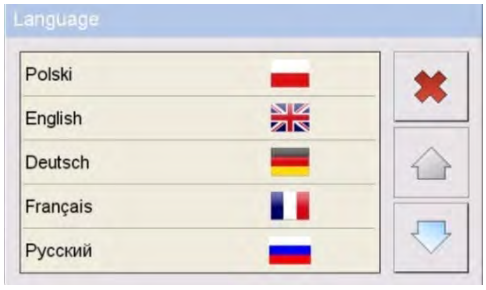


Tap **< Others >**.

To call up and change settings tap the icons.

7.8.1 User language

Tap **< Language >**.

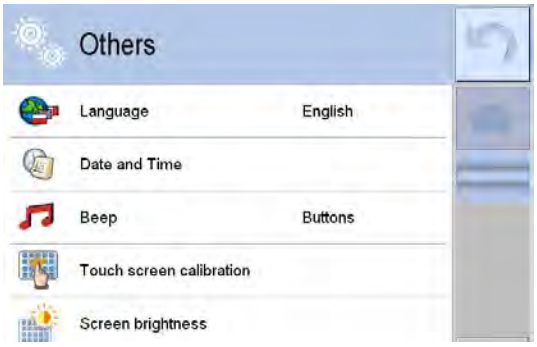


Select language.

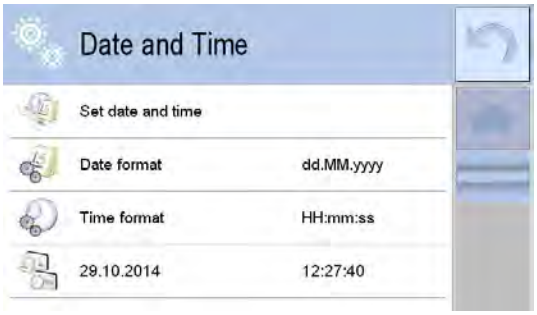
The display will change directly to the selected language.

English

7.8.2 Enter date / time, select display format

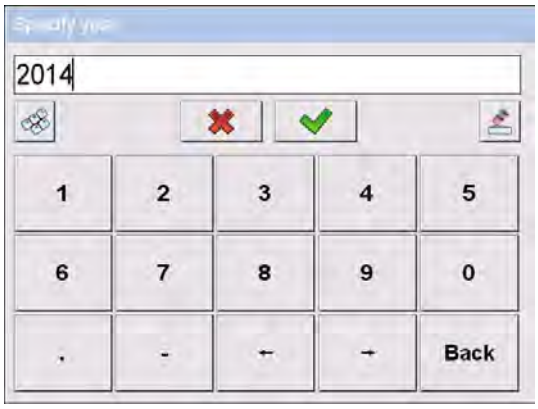


Tap **< Date and time >.**



The individual settings can be called up and edited by tapping the icon.

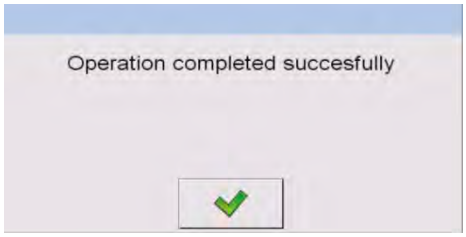
1. Setting date and time



Tap **< Set date and time >**

Go to the numeric input window and enter date / time.

Follow the on-screen instruction. Enter year, month, day, hour, minutes one by one and import accordingly by ✔ .



Confirm query for import by tapping ✔

You may also set date / time directly by tapping the date / time display in the main window, see chap. 2.2 [4]

2. Selecting date format

Tap **< Date format >**

Import desired format by tapping.

3. Selecting time format

Tap **< Time format >**

Select desired display format by tapping.

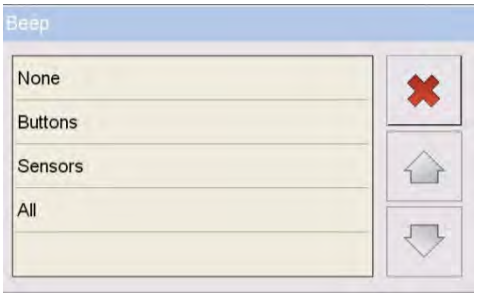
4. Display of currently set time / date

English

7.8.3 Signal tone when pressing button

Every time a key is pressed, a brief audio signal will be sounded for confirmation.
This function can be enabled / disabled as follows.

Tap **< Beep >**.



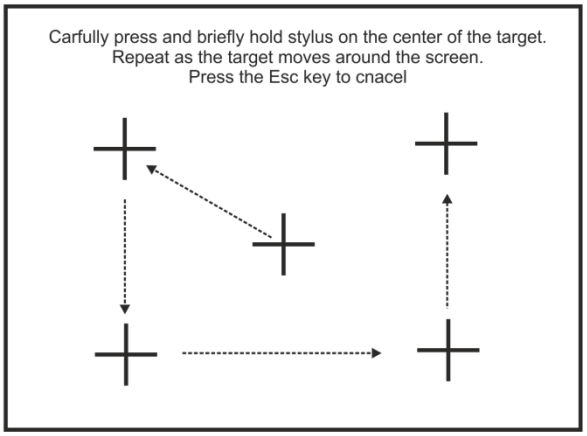
The menu will appear.

None	Audio signal disabled
Button	Audio signal will be sounded every time you press a key.
Sensors	The sensor confirms that it has detected and executed a command by sounding an audio signal.
All	Audio signal will be sounded when keys and optic sensors are operated.

7.8.4 Set the touch screen alignment

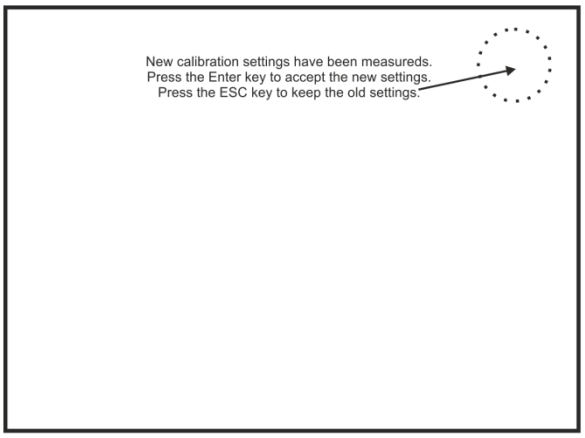
When the alignment of the touch-sensitive ranges of the display does not match exactly with the position of the buttons, it can be corrected with the help of this function.

Tap **< Touch screen calibration >**.



To adjust the touch screen, follow the instructions on the screen.
With a pen tick the centre of the cross as exactly as possible. Press and hold until the next cross appears.

Repeat this process for all items.



Press PRINT key to confirm the new settings.

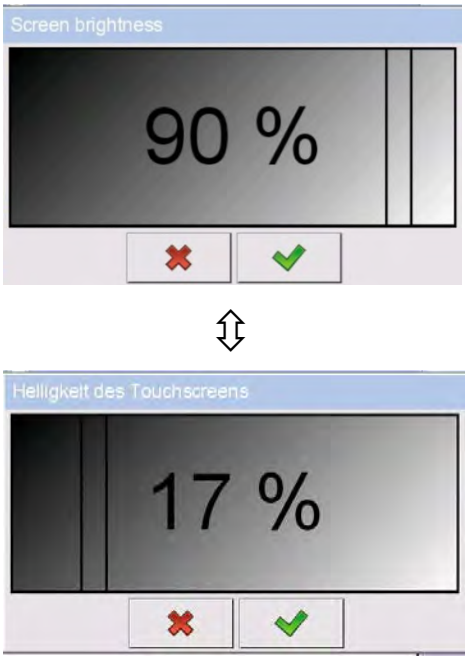
To cancel, tap the screen on the top right corner (See image).

- ☞ Ensure that during adjustment no other ranges of the display are touched.
- ☞ Do not touch the display by hand.
- ☞ The adjustment cannot be interrupted.

English

7.8.5 Setting brightness of display

Tap **< Screen brightness >**.



The currently set brightness will be displayed.

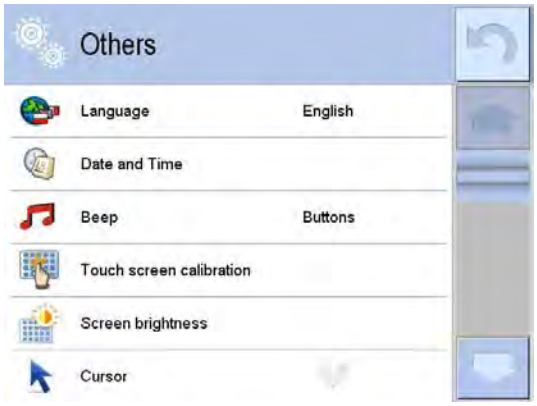
To change, drag bar to the right or left. Every movement will change the brightness immediately, making the change immediately noticeable.

Take over setting with ✔.

Adjustable: 0 % - 100 %

Default setting: 90 %

7.8.6 Set mouse support

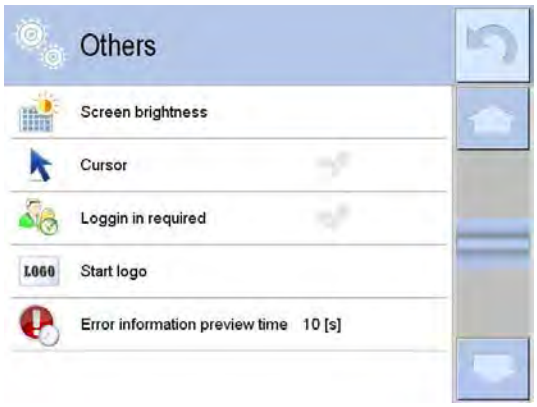


Tap **< Cursor >**.

✔ Mouse support enabled

✔ Mouse support disabled

7.8.7 Setting “Log on required“



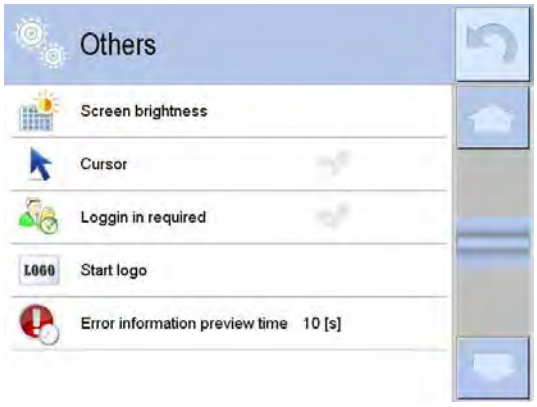
Tap **<Login in required >**.

To force the user to log on after starting up the device, enable function <log on required>.

Log on required

Log on not required

7.8.8 Setting start logo



Tap **< Startlogo >**.

1. Startlogo

This function is used to customise the start logo.

Connect the USB storage medium containing the start logo file.

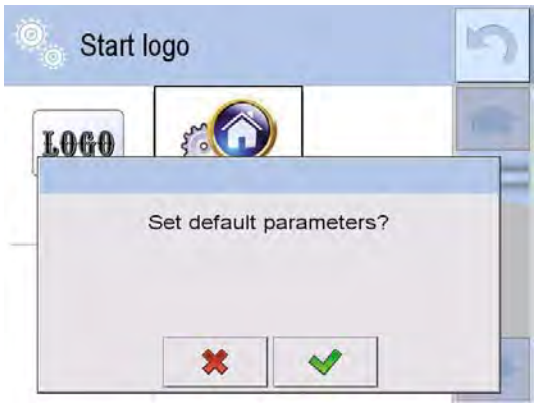
Optimal resolution for start logo file (JPEG, PNG) is 640 x 480 pixel

Tap **< Start logo >** and import file.

The start logo will be updated on restarting.

English

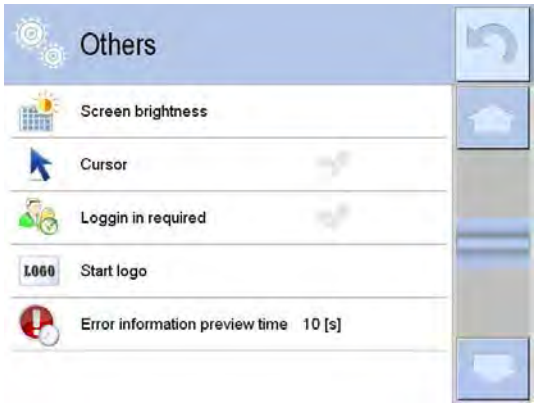
2. Standard Settings



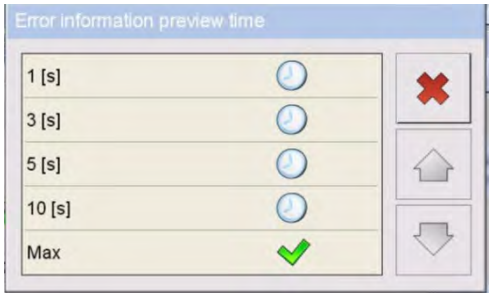
Tap **< Set Default >**.

To reset the default setting for the start logo, tap ✔

7.8.9 Setting viewing times for error messages



Tap **<Error information preview time>**.



Tap desired duration.

7.9 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each display unit with connected weighing plate 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 weighing system 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 display unit periodically in weighing operation.

i	The adjustment of this menu item is locked in calibrated weighing systems. It is not shown on the menu. To disable the access lock, destroy the seal and actuate the service switch. For position of service switch see chap. 7.10. Attention: After destruction of the seal the weighing system must be re-verified by an authorised agency and a new verification wire/seal mark fitted before it can be reused for applications subject to verification.

☞ **For execution of "adjust weighing system" see chap. 21.4**

7.10 Verification

General introduction:
According to EU directive 2009/23/EC balances must be officially verified if they are used as follows (legally controlled area):

a) For commercial transactions if the price of goods is determined by weighing.
b) For the production of medicines in pharmacies as well as for analyses in the medical and pharmaceutical laboratory.
c) For official purpose.
d) For manufacturing final packages.

In cases of doubt, please contact your local trade in standard.

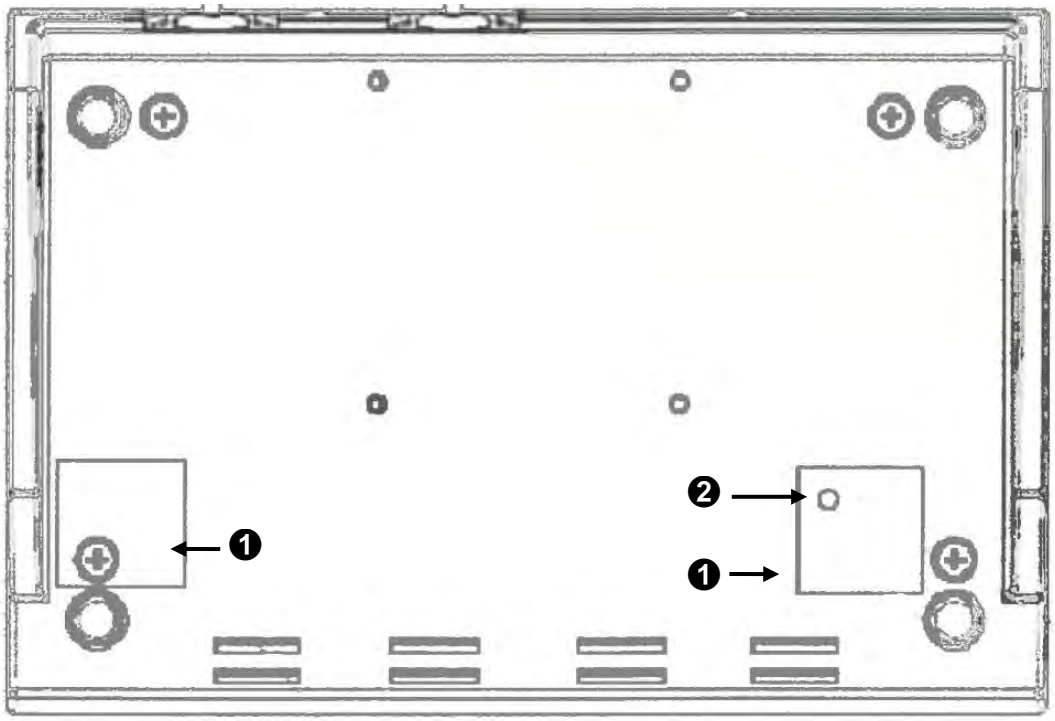
Verification notes:

An EU Qualification Approval is in existence for verified weighing systems. If a balance is used where obligation to verify exists as described above, it must be verified and re-verified at regular intervals.
Reverification is carried out according to the relevant national statutory regulations. The validity for verification of balances in Germany is e.g. 2 years.
The legal regulation of the country where the balance is used must be observed!

Notes on verified weighing systems

In calibrated weighing systems the adjustment switch used for adjustments is locked. To disable the access lock, destroy the seal and actuate the service switch.

Position of seals and adjusting switch:



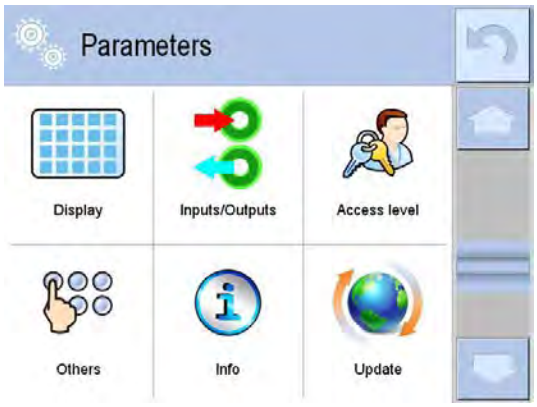
❶ Self-destructing seals

❷ Service switch

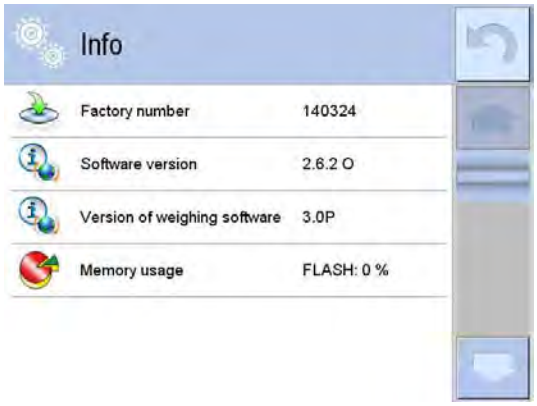
- Verification of the weighing system is invalid without the "seal".

7.11 Weighing scale info

This function is used to call up weighing scale information.



Tap **< Info >**.



The following information about the weighing scale will be displayed:

- Serial number
- Program version “metrology“
- Program version “applications“
- Current storage capacity

English

8 Application settings

Overview of available applications:

	Weighing	see chap. 9.
	Parts counting	see chap. 10.
	Percent determination	see chap. 11.
	Dosing	Not documented; for further information please contact KERN
	Recipes	see chap. 12.
	Density determination	Not documented; for further information please contact KERN
	Animal weighing	see chap. 13.
	FPVO	Not documented; for further information please contact KERN
	Vehicle weighing	Not documented; for further information please contact KERN

8.1 Select application

There are two options available:

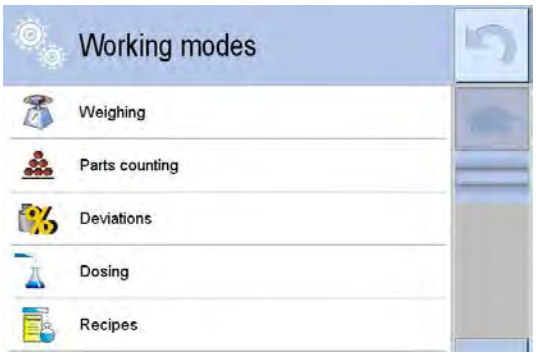
1. By tapping the icon on the top left corner of the window

   or

2. By calling up in the menu

1. Tap the icon on the top left corner of the window [1].

The menu will appear.



Tap desire application.

Which applications are to be available on the menu is defined under menu item <functions ➡ availability>.

⇨ For menu access press MENU.

Tap **< Working modes >**.

Tap **< Accessibility >**.

Enable functions to be available on the menu.

enabled

disabled

English

2. Call up application on menu

⇨ For menu access press MENU.

Tap **< Working modes >**.

Tap desire application.

English

8.2 Application specific settings

Application specific settings are available to customise the application according to your requirements. The available settings depend on the currently enabled application. Some of these settings are global, that is, they are available with most applications (except Recipeting, dispensing). Please refer to the overview below:

	Weighing	Piece counter	Percentage determination	Animal weighing	Density determination
Storage mode	✔	✔	✔	-	✔
Differential weighing	✔	✔	✔	-	✔
Checkweighing	✔	✔	✔	✔	✔
Tare mode	✔	✔	✔	✔	✔
Labelling	✔	✔	✔	✔	✔
Statistics	✔	✔	✔	✔	✔
Peak value function	✔	-	-	-	-

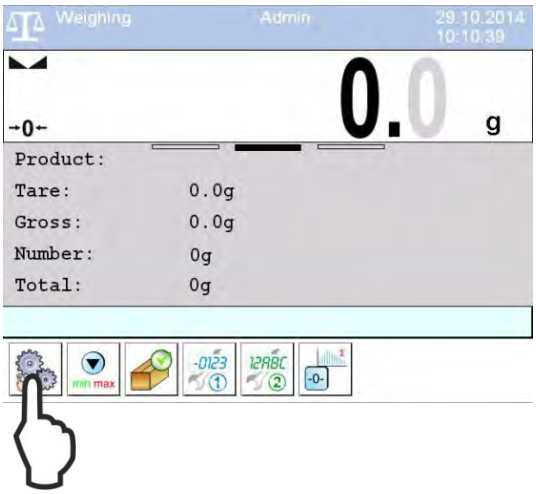
Two options are available for defining application specific settings:

1. By tapping the icon  on the bottom left corner of the window.

   or

2. By calling up in the menu

1. **Tap the icon on the bottom left corner of the window.**



This action will bring up the application specific settings of the currently enabled applications.

Tap the desired setting.

2. **For menu access please press** MENU.

Tap **< Working modes >**.

Tap desired application (such as weighing).

The application related settings will be displayed.

English

9 Weighing

The default setting for the weighing scale in the application is weighing.

How to carry out a simple weighing process is described in chap. 6.9 “Basic operation“ Apart from the operating steps described therein (simple weighing, zero setting, taring, selecting weighing unit) the weighing system also offers additional options for customising application “Weighing“ to your specific requirements.

i	For selecting application, see chap. 8.1 For selecting application specific settings, see chap. 8.2

The following settings are available for application “Weighing“:

	Storage mode	see chap. 9.1.
	Dispensing	see chap. 9.2.
	Checkweighing	see chap. 9.3.
	Tare mode	see chap. 9.4.
	Labelling mode	see chap. 9.5..
	Statistics	see chap. 9.6.
	Differential weighing	see chap. 9.7.
	Peak hold	see chap. 9.8.
	Info about saved weighing activities	see chap. 9.9.

9.1 Setting storage conditions for alibi memory

This function is used to determine under which conditions weighing values are to be saved to the alibi memory; options include:

- Manual all stable
- Manual first stable
- Automatic last stable
- Automatic first stable

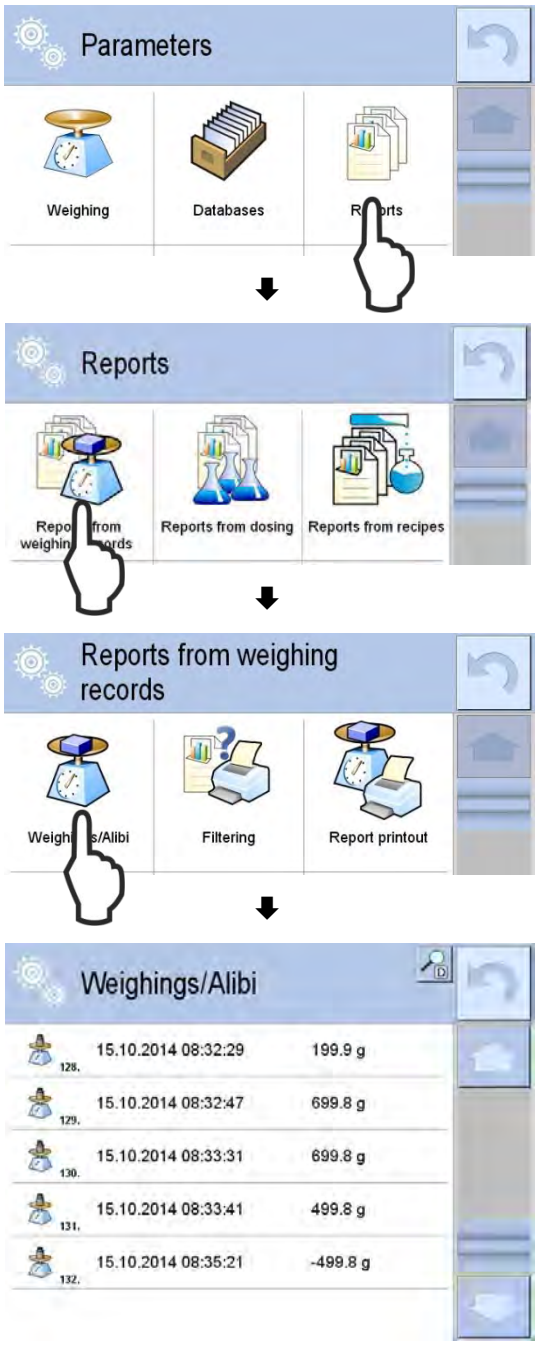
Tap **< Save mode >**.

Select condition that is to trigger storage, see table below: 7.

Tab. 7:

Manual all stable	Each stable weighing value will be saved after pressing the PRINT key.
Manual first stable	The first stable weighing value will be saved after pressing the PRINT key.
Automatic last stable	The last stable weighing value will be saved automatically.
Automatic first stable	The first stable weighing value will be saved automatically.

English



Under the menu item

<Reports>

⬇

<Reports from weighing records>

⬇

<Weighings / Alibi>

the saved weighing value can be seen

English

9.2 Dispensing

⇨ Place and tare full container.

⇨ Remove portions of components and save them at the same time to the alibi memory (Depends on menu setting in storage module), see chap. 9.1). The displayed minus figures are saved to the alibi memory as plus figures.

⇨ Under the menu item
<Reports>
⬇
<Reports from weighing records>
⬇
<Weighings / Alibi>

the saved weighing values can be seen, see chap. 9.1.

Tap **< Dispensing >**.

Weighing scale is working in default weighing mode

Weighing scale is working in mode
"Differential Weighing"

English

9.3 Checkweighing

Checkweighing allows you to set an upper as well as a lower limit value (min / max threshold) and ensures that weighed loads are kept precisely within the set tolerance limits.
The bargraph display facilitates checkweighing by differently coloured displays according to the settings in the menu. < display ➡ bargraph >, see chap. 7.4.4.

Log / save result of tolerance check

Tap **< Checkweighing >**.

Weighing scale saves / logs each weighing activity

Weighing scale saves / logs only weighing activities that are kept within the min / max threshold.

Save result in alibi memory after tolerance check (according to menu setting in storage mode> see chap. 9.1).

⇨ Under the menu item

<Reports>
⬇
<Reports from weighing records>
⬇
<Weighings / Alibi>

the saved weighing value can be seen, see chap. 9.1.

Entering limits:

Press assignable function key 

(For assigning function to a key, see chap. 7.4.2).

The numeric input window for min threshold will be displayed.

Enter value for min threshold (such as 1500 g) and press  to import.

The numeric input window for max threshold will be displayed.

Enter value for max threshold (such as 2000 g) and press  to import.

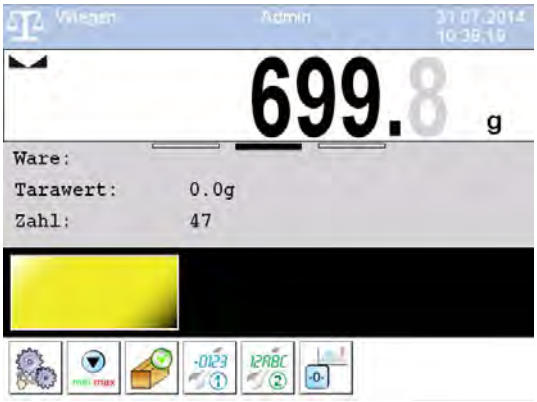
English

Start checkweighing:

⇨ Tare when using a weighing container.

⇨ Put on goods to be weighed, tolerance control is started. The pilot lights indicate whether the load is within the min / max threshold.

Display example for bargraph setting “pilot light“:

State	Display	Factory setting
<too light>		yellow
<good>		green
<too heavy>		red

English

9.4 Tare mode

Tap **< Tare mode >**.

Select tare mode; see table below. 8.

Tab. 8:

Subsequent tare weight	This function allows multiple taring. The limit is reached when the whole weighing range is exhausted. Example: ⇨ Place first container or packaging on weighing scale and press the TARE key. The tare weight will be saved and zero display and [**Net]** indicator will appear. ⇨ Weigh the material, the net weight will be indicated. ⇨ Place second container or packaging on weighing scale and again press the TARE key. ⇨ The loaded total weight will be saved as the new tare weight and zero will be displayed. Weigh load into the second container, net weight will be displayed. ⇨ For additional containers / packaging repeat these steps.
Total of current	When selecting a product with tare value from the database you can increase this tare value numerically by pressing the function key  (For assigning function key, see chap. 7.4.2). Each new tare value entry overwrites the previous tare value. Everything is based on the original value in the database.
Total of all	When selecting a product with tare value from the database This value can be increased numerically by pressing the function key  (For assigning function key, see chap. 7.4.2). Each numeric tare value will be added to the previous tare value.
Auto tare	Each first stable weighing value will be automatically imported as tare value. Zero display and indicator **[Net]** appear. Place filled weighing container on weighing scale and the net weight will be shown.
Each measurement	Each confirmed weighing value will be imported as tare value.

English

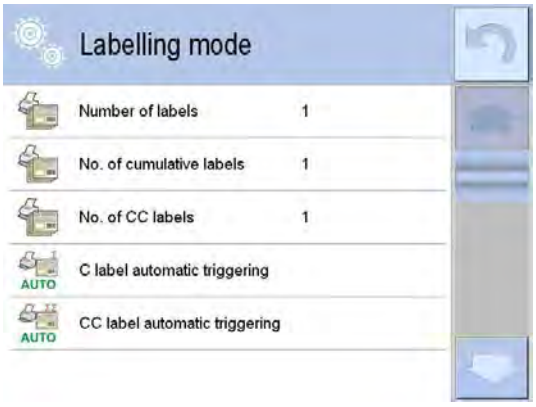
9.5 Labelling

The creation of labels is only possible in combination with label printers KERN PET A07 or PET A08.

Available labels:

- Standard labels for attaching to individual products
- Miscellaneous labels for attaching to container
- Miscellaneous labels, of miscellaneous labels for attaching to container

Tap **< Labelling mode >**.



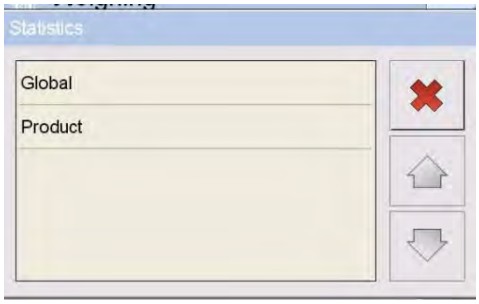
Select function

For further information please refer to the operating instructions enclosed with the optional label printers KERN PET A07 / PET A08.

9.6 Statistics

Statistics will be updated each time a new value is imported. This function is used to determine whether statistical data updating shall take place independent on a certain product or dependently on a product in the database.

Tap **< Statistics >**.



Select function:

Global Statistics data will be updated globally

Product Statistics data will be updated separately for each weighed product from the database.

i	When <**Statistics**> ➡<**Goods**> is selected, only data relating to the most recently weighed product will be imported to the device's statistics after a restart.

English

9.7 Differential weighing

In differential weighing, samples are investigated with regard to changes in weight. The first working step is to determine the initial weight of the sample. Afterwards some components of the sample will be removed or added (such as drying, separating, filtering, reducing to ash, vaporizing and letting condense, coating). The sample will be reweighed after processing. Then the weighing scale will measure the difference between the two weighing activities.

Activate function:

Tap **< Differential weighing >**.

The menu will appear.

Not documented; for further information please contact KERN

9.8 Peak value function

This function shows the highest load value (peak value) in a series of weighing activities.
The peak value remains in the display until it will be deleted.

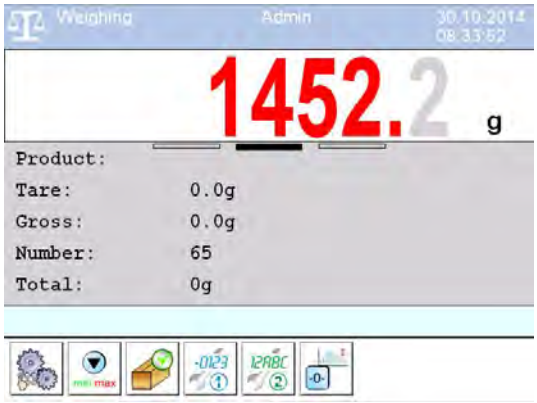
Activate function:

Tap **< Peak hold>**.

Function deactivated

Function activated

Display peak value:



⇨ Load weighing pan.
The highest load value is displayed in red digits.

⇨ The peak value remains in the display until it will be deleted using →0←. Then the balance is ready for further measurements.

English

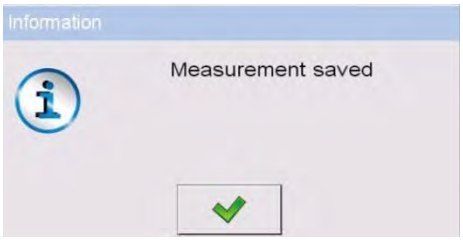
9.9 Info about saved weighing activities

Activate function:

Tap **<Information about saved measurement>**.

Function deactivated

Function activated



When this function is enabled, the info field will appear after every saving action.

Confirm query for import by tapping

English

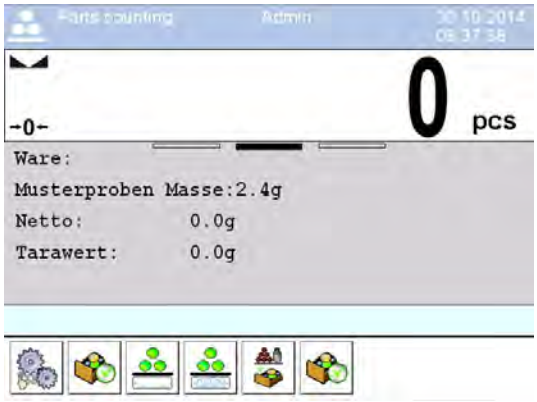
10 Parts counting

Before the balance can count parts, it must know the average part weight (i.e. reference). Various methods are at hand for determining a reference single weight . (See chap. 10.3.1, chap.10.3.2).

10.1 Select application

Tap for instance symbol in the top left corner of the display window and select the application **<Parts counting>** or you can call it up from the menu (For details see chap. 8.1).

The piece counting window is displayed showing the unit “pcs“.



Two special function keys < , > as well as a special info field are enabled by default for parts counting.

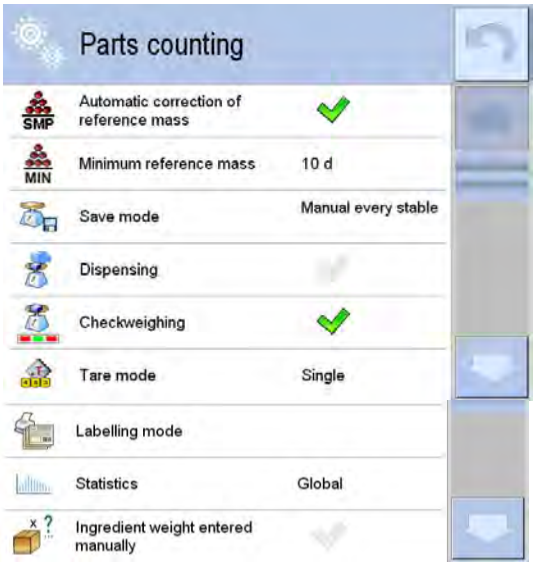
	The reference single weight is entered as numerical value, see chap.10.3.2
	The reference single weight is determined by weighing a known reference number of parts, see chap. 10.3.1

	Selecting further function keys, see chap. 7.4.2

English

10.2 Application specific settings

⇨ Tap icon  in the bottom left corner of the window or call it up from the menu (For details see chap.8.2).
The application specific settings will be displayed.



SMP	Automatic correction of reference mass	see chap. 10.2.1.
MIN	Minimum reference mass	see chap. 10.2.2.
	Save mode	see chap. 9.1.
	Dispensing	see chap. 9.2.
	Checkweighing	see chap. 9.3.
	Tare mode	see chap. 9.4.
	Labelling mode	see chap. 9.5
	Statistics	see chap. 9.6.
A–B	Differential weighing	see chap. 9.7.
	Info about saved weighing activities	see chap. 9.9.

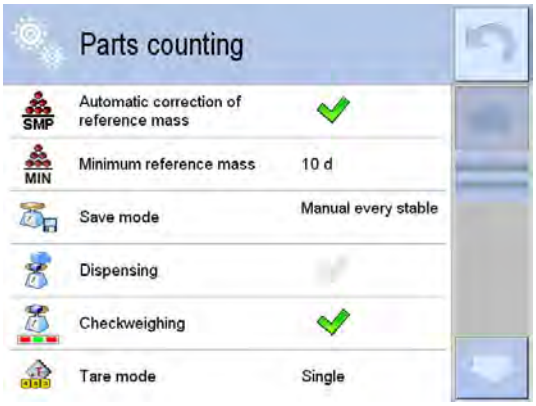
English

The setting options for the application “Parts counting“, are with a few exceptions identical to those of the application “Weighing“. For that reason the description below is restricted to the divergent settings.

10.2.1 Automatic reference optimization

This function is used to determine whether the reference single weight is to be optimised automatically during counting.
At every reference optimisation, the reference piece weight is calculated anew. As the additional pieces increase the base for the calculation, the reference also becomes more exact.

Activate function:



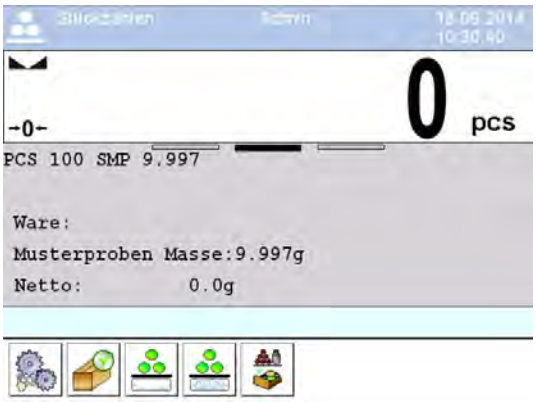
Tap **<Automatic correction of reference mass>**.

Function deactivated

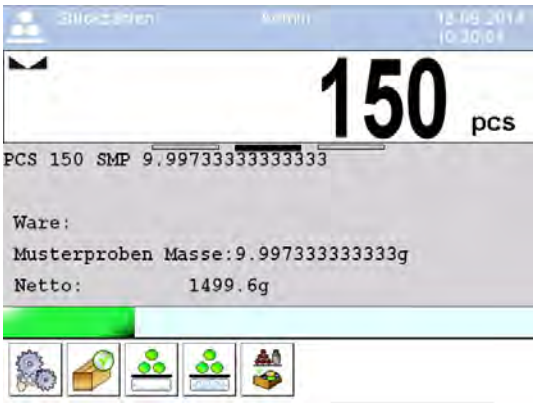
Function activated

English

Counting with reference optimisation



For setting reference single weight (see chap. 10.3.1or chap. 10.3.2), continue parts counting.



The quantity placed on the weighing scale will be used as new reference number of parts and will be used as a basis for reference single weight recalculation.

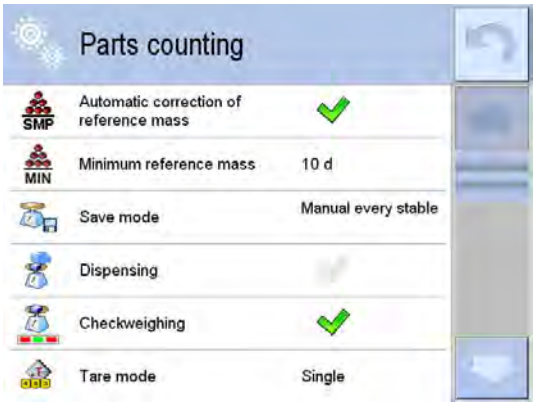
The info field shows the new reference number of parts and the optimised reference single weight.

Notes:

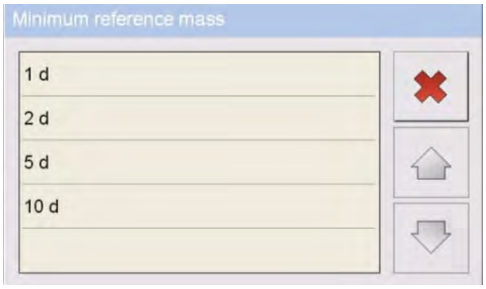
Reference optimisation will only be carried out when:

- The number of placed parts is greater than the previous reference number of parts.
- The number of placed parts is not greater than double the previous reference number of parts.
- When reference optimisation is enabled, the **PRINT** key cannot be used for data transmissions to a connected printer.
- You can use the **PRINT** key to disable reference optimisation as soon as it is sufficient.

10.2.2 Minimum reference single weight



Tap **<Minimum reference mass>**.



Select desired setting.

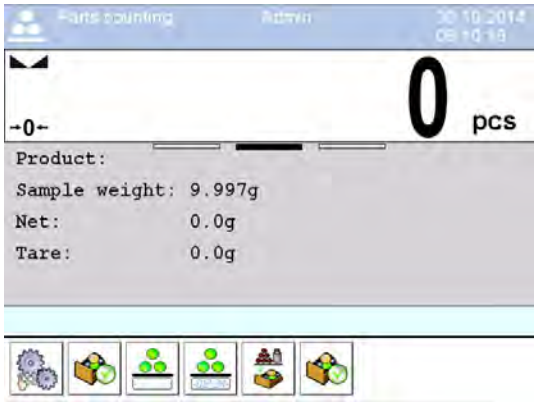
Entering a reference single weight smaller than the set readability will result in an error message preventing import by pressing ✓.

English

10.3 Carry out parts counting

10.3.1 Determination of the reference piece weight by weighing

Determining reference



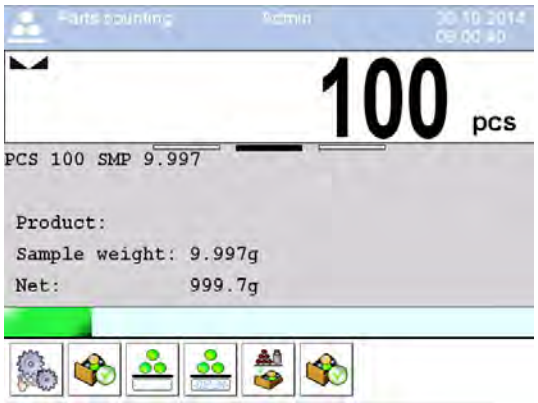
⇨ Reset balance to zero or tare the empty weighing container if necessary.

⇨ Press  button.

⇨ Enter the known quantity of reference parts (such as 100 items) via the numeric keys and import by pressing ✔.

⇨ Place the required number of reference parts on the weighing scale (such as 100 items). Wait until stable and import by pressing ✔.

English



⇨ The weighing scale determines the reference single weight and displays the result on the info field.

⇨ Remove reference weight.

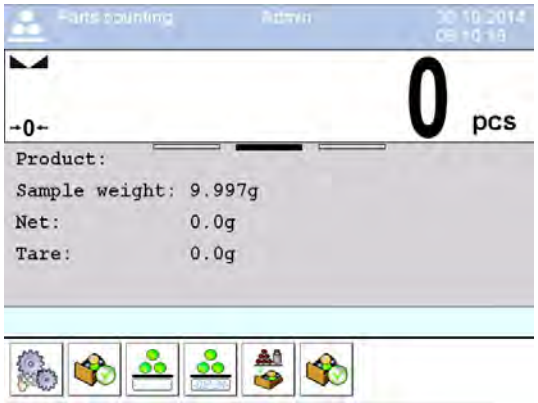
Count the items

⇨ Tare if necessary, place weighing good and read off the number of items.

English

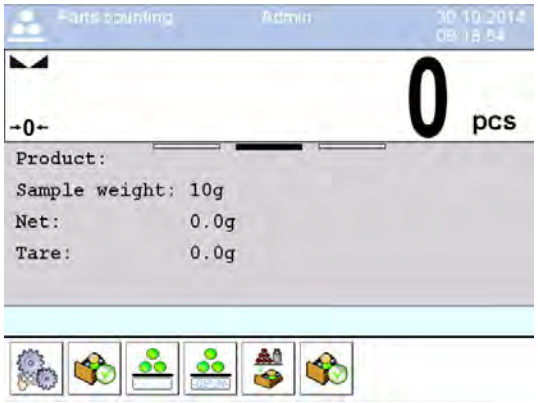
10.3.2 Enter reference single weight as numeric value

Set reference:



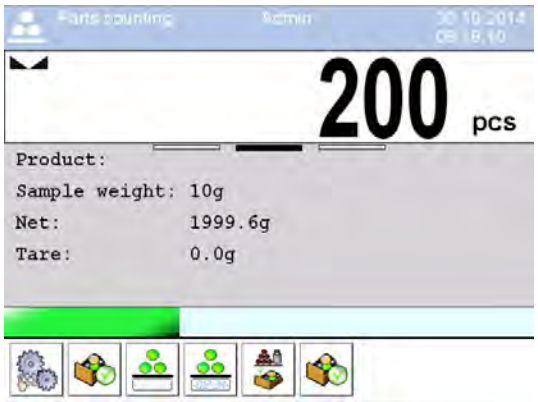
⇨ Press button.

⇨ Enter known reference single weight (such as 10 g) via the numeric keys and import by pressing .



The entered reference single weight will be shown in the info field.

Count the items

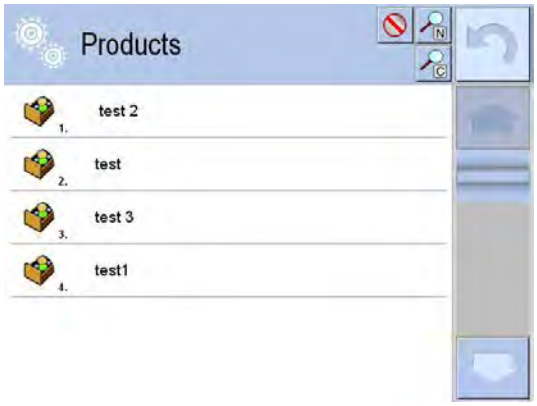


⇨ Tare if necessary, place weighing good and read off the number of items.

English

10.4.1 Load reference single weight from database.

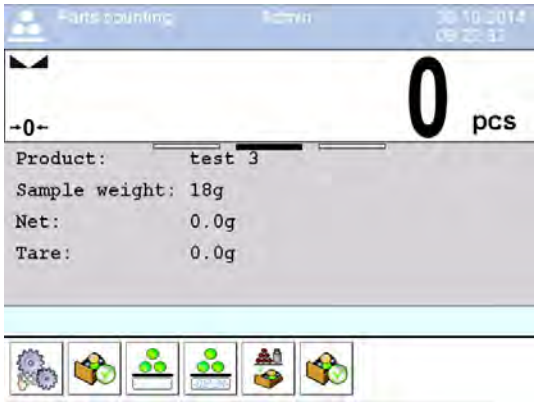
Load reference



If a reference single weight was previously allocated to a product in the database (see chap.10.4.2) this can be loaded via the key F1 (default)

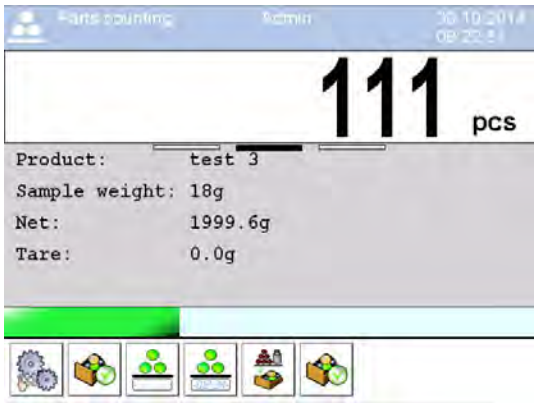
or

the function key  .



⇨ Select product and the allocated reference single weight will be loaded

Count the items



⇨ Tare if necessary, place weighing good and read off the number of items.

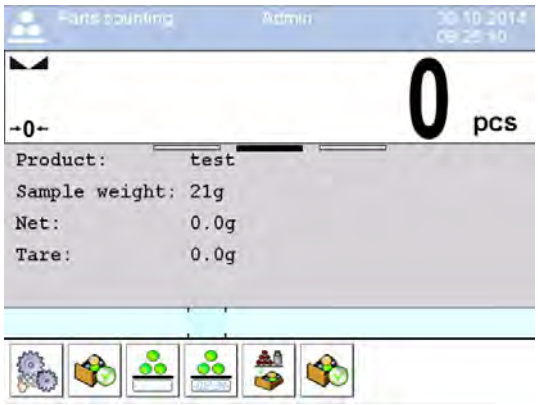
English

10.4.2 Allocating reference single weight in database to a product

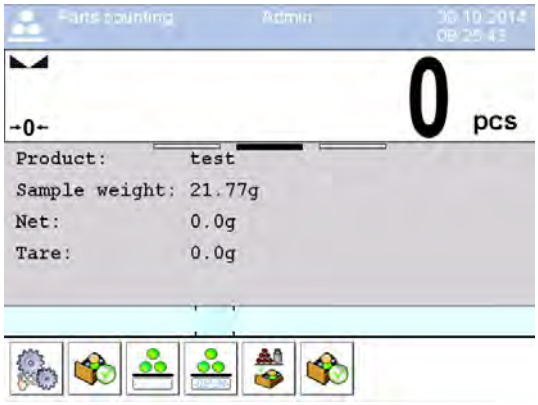
Procedure 1 via function keys:

⇨ Press F1 or function key  and select product from menu.

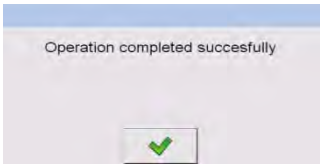
⇨ The data record for the selected product will be loaded.



⇨ For determining / changing reference single weight see chap. 10.3.1 or 10.3.2.



⇨ Import together with reference single weight to database by  .



ℹ	If the function keys described above are not displayed, follow the route described in chap. 7.4.2

Procedure 2 via menu:

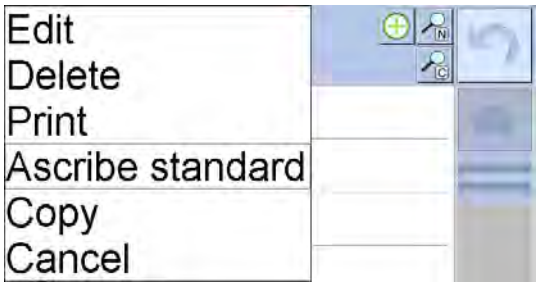
⇨ For determining a reference single weight see chap. 10.3.1 or chap.10.3.2

⇨ Press MENU to invoke menu and select the product to be assigned a reference single weight under **<Database> ➡ <Product>.**

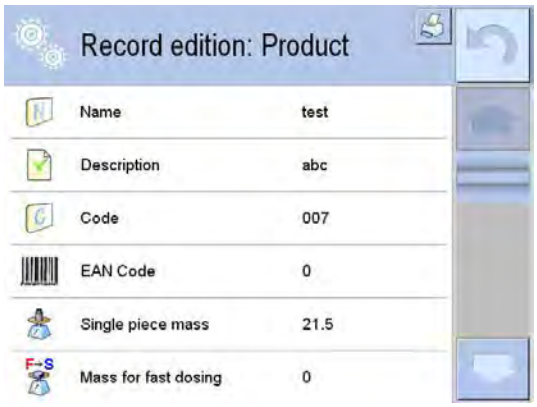
or

Press F1 and select the product to be assigned a reference single weight from the menu.

⇨ Keep your finger on the menu until the context menu appears.



⇨ Tap **<Ascribe standard>.**



The reference single weight will be saved under the item **<Single piece mass>.**

11 Percent determination

Percent weighing allows to display weight in percent, in relation to a reference weight (100%). There are several options available for determining the reference (see chap. 10.3.1, chap. 0).

11.1 Select application

Tap for instance the icon in the top left corner of the window and select the application **<** Abweichungen **>** or call it up in the menu (Details, see chap. 8.1). The screen for percentage calculation using the "%" unit will be displayed.

Two special function keys **<** , **>** as well as a special info field are enabled by default for percentage determination.

	Enter the reference weight as numeric value, see chap. 11.3.2
	The reference weight is determined by means of weighing, see chap. 11.3.1

i	Selecting further function keys, see chap. 7.4.2

11.2 Application specific settings

⇨ Tap icon  in the bottom left corner of the window or call it up from the menu (For details see chap.8.2).
The application specific settings will be displayed.

	Save mode	see chap. 9.1
	Dispensing	see chap. 9.2
	Checkweighing	see chap. 9.3
	Tare mode	see chap. 9.4
	Labelling mode	see chap. 9.5.
	Statistics	see chap. 9.6.

The setting options for the application “Percentage Calculation“ are identical to those of the application “Weighing“.

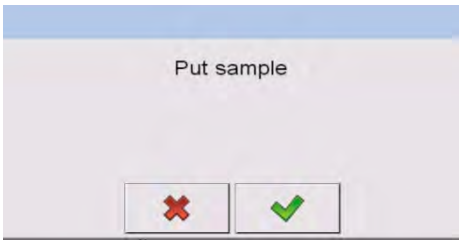
11.3 How to carry out percentage calculation

11.3.1 Determination of the reference weight by weighing

Determining reference

⇨ Reset balance to zero or tare the empty weighing container if necessary.

⇨ Press  button.



⇨ Place reference weight equalling 100 % on weighing scale; wait until stable and import by pressing ✓.

⇨ The weight will be imported as reference (100%) and displayed in the info field.

⇨ Remove reference weight.

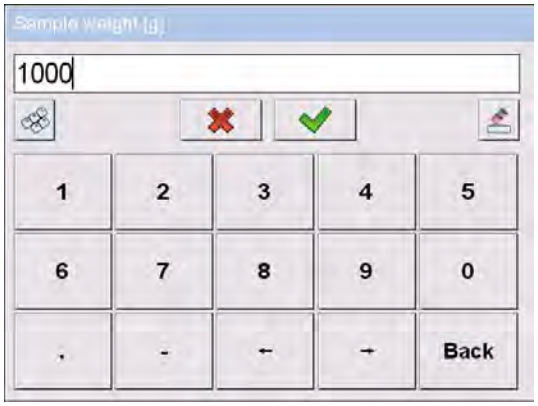
Percent weighing

⇨ Place goods to be weighed on balance.
The weight of the item to be weighed is displayed in percent, referring to the reference weight.

11.3.2 Enter reference weight as numeric value

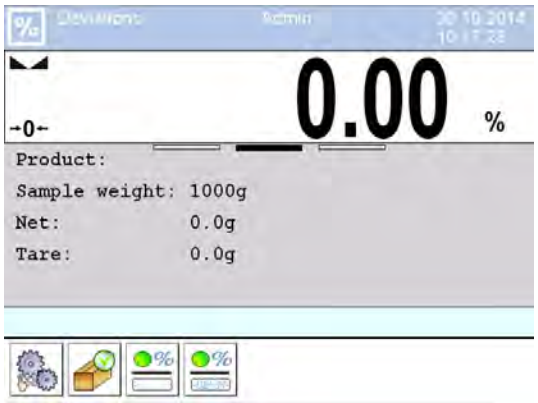
Determining reference

⇨ Press  button.



⇨ Enter known reference weight (such as 1000 g) via the numeric keys and import by pressing ✔.

English



The weight will be imported as reference (100%) and displayed in the info field.

Percent weighing

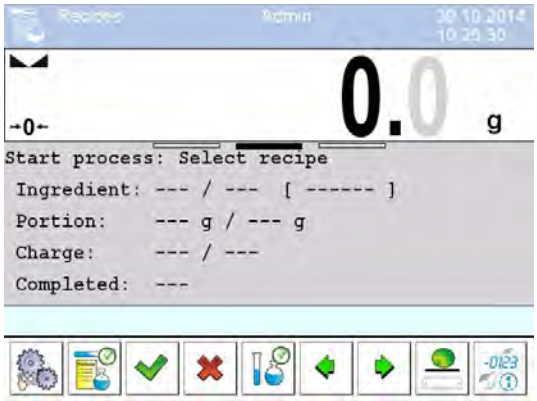
⇨ Place goods to be weighed on balance.
The weight of the item to be weighed is displayed in percent, referring to the reference weight.

12 Formulation

This function is used to weigh several related components one after another.
The weighing results of all single components as well as the overall result will be recorded and can be logged.
Complete recipes including all components and their related parameters (such as name, tolerances, tare weights) can be stored in the database. When processing these recipes from the database the weighing scale will guide you step by step through the process of adding components.
In the case of excess weight for a component the useful back calculation function will automatically calculate the new target weight for the other components.

12.1 Select application

Tap for instance the icon in the top left corner of the window and select the application **< Recipes>** or call it up in the menu (Details, see chap. 8.1).
The display for formulation will be shown.



English

The function keys below as well as a special info field for Recipetion are enabled by default.

	For application specific settings see chap. 12.2
	For selecting a recipe see chap. 12.4
	Start recipe
	Stop recipe
	Select component from recipe menu
	Select previous component of recipe
	Select next component of recipe
	Enter weight manually – weight of component in recipe in finished packaging with known weight
	Edit serial number of component and/or initial weight for ingredient of recipe

	Selecting further function keys, see chap. 7.4.2

English

12.2 Application specific settings

⇨ Tap icon  in the bottom left corner of the window or call it up from the menu (For details see chap.8.2).
The application specific settings will be displayed.

Tap button.

Function deactivated

Function activated

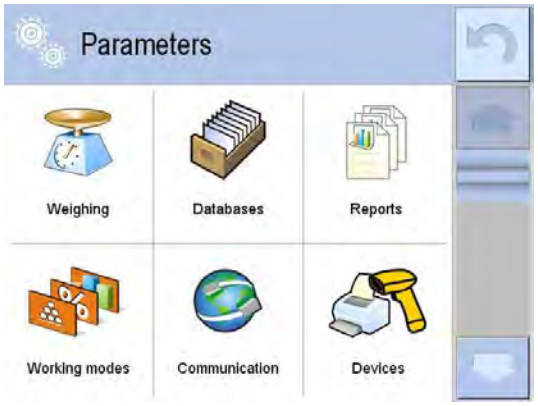
Explication:

	Ask for multiplier	Enable query, by how many multiples the amount of the recipe has to be created (such as double the amount = factor 2). The target weights of the components to be weighed will then be adjusted accordingly.
	Ask for numer of cycles	Query about how often the recipe has to be processed.
	Confirm batching ingredients manually	Each individual component must be imported manually by pressing the **PRINT** key. Tare every time you add a component by pressing the **TARE** key.
	Automatic tare	Automatic import of individual components after stability has been established. Automatic taring on start of recipe and every time a component is added.
	Ingredient control	When "**Check Component**" is enabled the editing window <Check Component> will appear prior to adding the component. The editing window is used to enter the component's code with the help of a bar scanner.
	Portion weighing	To reach the target weight, enable "Dosing of Components in Random Dosages" mode.
	Record printout	Automatic log printout after recipe completion

English

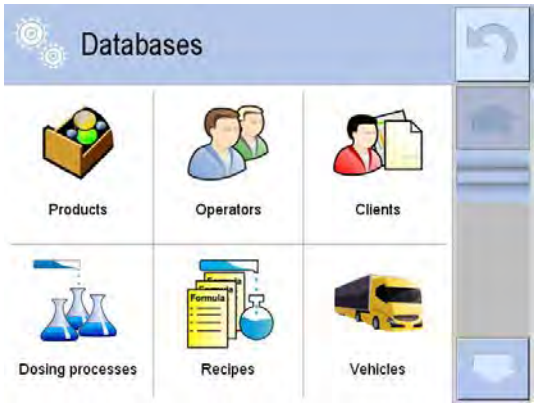
12.3 Defining recipe in database

Call up recipe database:



⇨ Call up menu by MENU

⇨ Tap **<Databases>**



⇨ Tap **<Recipes>**

Define new recipe:

⇨ Tap < > to enter new data record.

⇨ Acknowledge query “Create new data record?“ by tapping ✓.

⇨ The menu will appear.
Tap the individual icons to call up and edit the individual settings as described below.

1. Name

⇨ Go to the menu and tap <Name>.

⇨ The alphanumeric input window will appear.

⇨ Enter name of recipe and import by tapping ✔.

2. Code

⇨ In the menu tap <Code>.

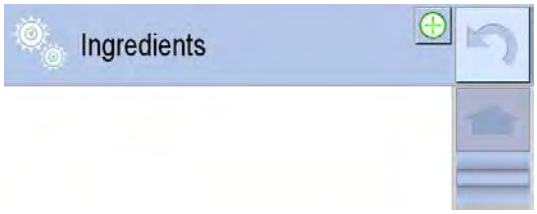
⇨ The alphanumeric input window will appear.

⇨ Enter code for recipe and import by tapping ✔.

English

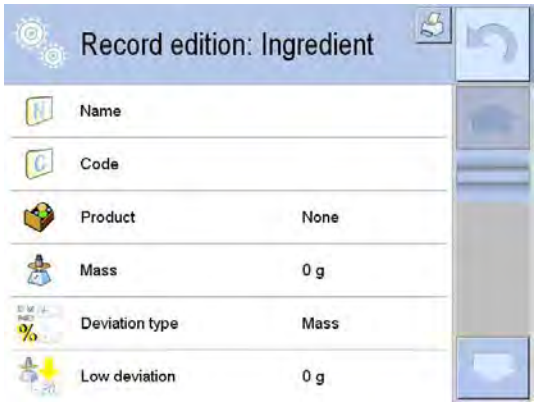
3. Component

This is used to define the individual components of the recipe.



⇨ Go to menu and tap < **Component** >.

⇨ To add a component, tap <⊕>.



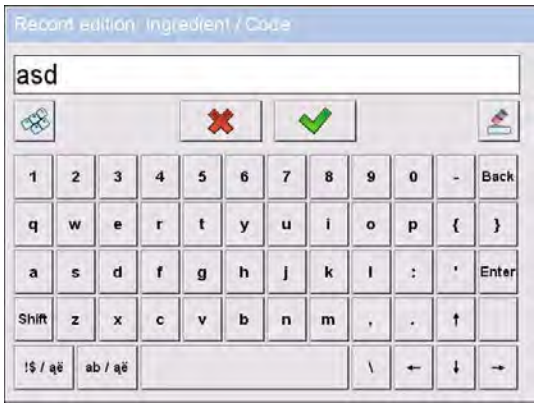
⇨ The list of parameters for the component will be displayed.

Define parameters for first component (such as milk):

⇨ In the menu tap <**Name**>.

⇨ The alphanumeric input window will appear.

⇨ Enter name of component and import by tapping ✔.



⇨ In the menu tap <**Code**>.

⇨ The alphanumeric input window will appear.

⇨ Enter code of component and import by tapping ✔.

English

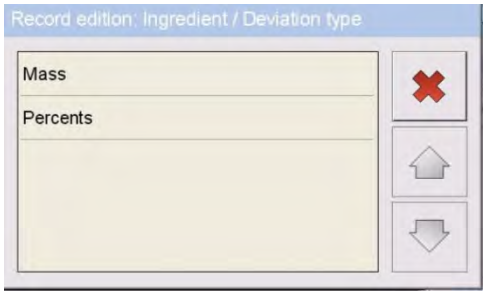
⇨ Go to menu and tap **<Products>** .

⇨ Select component from database “Product“

⇨ Go to menu and tap <**Mass**>.

⇨ The alphanumeric input window will appear.

⇨ Enter nominal weight (such as 470 g) for component and import by tapping ✔.



⇨ In the menu tap <**Type of deviation**>.

⇨ Select desired setting.

Mass	Admissible tolerance of component in gram
Percent	Admissible tolerance of components in percent

⇨ In menu tap <Lower deviation> / <Upper deviation>.

⇨ The alphanumeric input window will appear.

⇨ Enter admissible lower / upper tolerance for component (such as 5 g) and import by tapping ✔ .

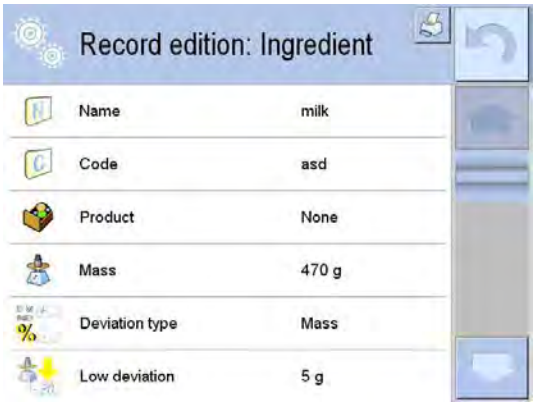
⇨ In menu tap <**Platform**>

⇨ Assign platform to component.

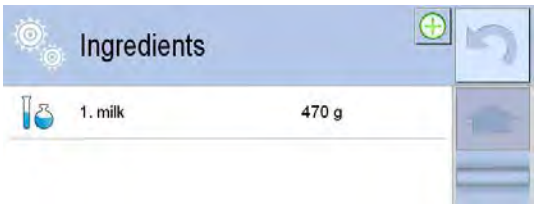
⇨ For enable <**Dispensing**>, see chap. 9.2

English

Define parameters for additional components:



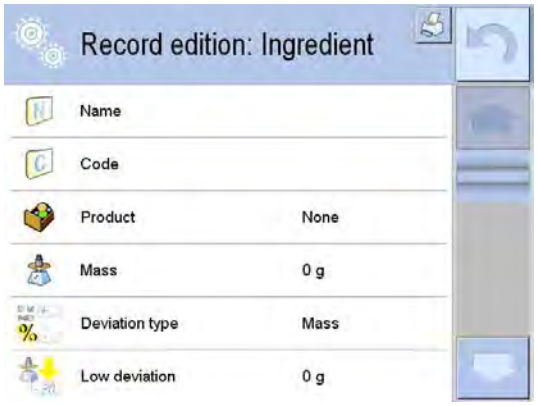
⇨ After defining all parameters for the first component return to menu by  .



⇨ Add more components by <  >.

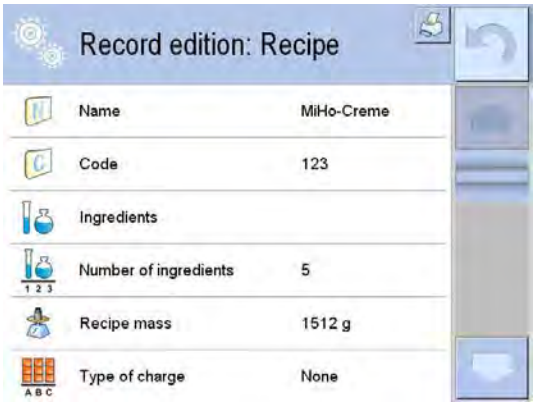
or

⇨ Keep your finger pressed on the first component until the context menu appears.



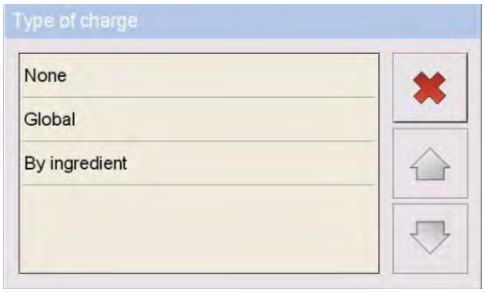
⇨ Tap <**Add**> and define additional components as described for first component.

⇨ When you have completed defining all components for the recipe, return to menu by  .



⇨ The number of components  and the total weight  will be displayed.

4. Type of charge



⇨ Go to the menu and tap <**Type of charge** >.

⇨ Select desired setting.

No	Function deactivated
Global	Based on the recipe, several batches will be produced that contain all components of the recipe.

Example:

The recipe containing the three components A, B, and C is to be sub-divided into 5 portions (batches).

Weighing procedure:

1. [20% A, 20% B, 20% C]
2. [20% A, 20% B, 20% C]
3. [20% A, 20% B, 20% C]
4. [20% A, 20% B, 20% C]
5. [20% A, 20% B, 20% C]

English

By ingredient

Based on the recipe, several batches will be produced that contain only one of the components of the recipe.

Example:

Each component A, B and C is to be divided into 5 portions (batches).

Weighing procedure, sequential and separate for each component

1. [20% A, 20% A, 20% A, 20% A, 20% A]
2. [20% B, 20% B, 20% B, 20% B, 20% B]
3. [20% C, 20% C, 20% C, 20% C, 20% C]

5. Charge

⇨ In menu tap < **Charge** >.

⇨ Select number of batches

12.4 Process recipe from database

Condition:

- The user must be logged on at least at <user> level.
- Recipe already defined, see chap. 12.3
- For selecting application specific settings, see chap. 12.2

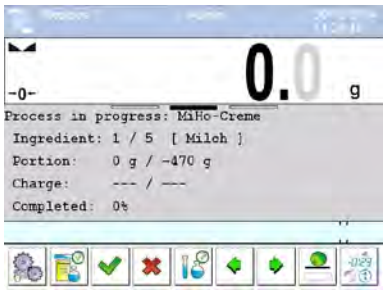
	For selecting a recipe see chap. 12.4
	Start recipe
	Stop recipe
	Select sequence of components from list of recipes: Start recipe by tapping <  >; tap <  > to display list of components and tap desired component.
	When recipe has started, select previous component of recipe
	When recipe has started select next component of recipe
	Enter weight for component of recipe in finished packaging with known weight manually.
	Enter batch number for component of recipe

English

⇨ Press function key and select desired recipe such as MiHo-Creme (see chap. 12.3) from database.

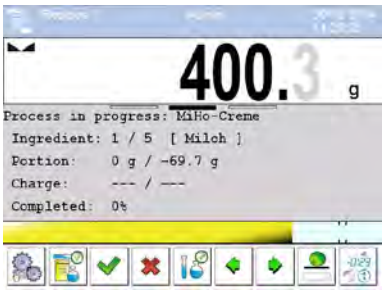
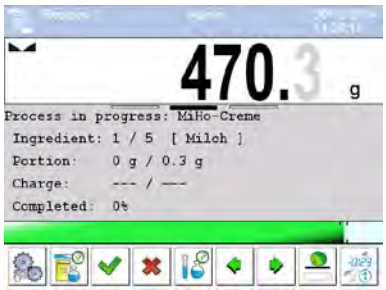
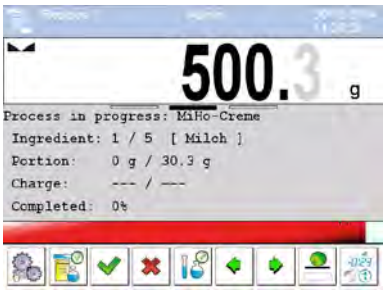
⇨ Place weighing container on weighing scale and tare by pressing **TARE** key.

⇨ Press function key and processing for recipe will start.

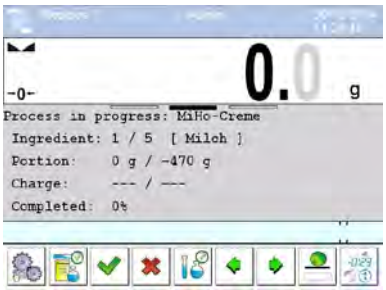


⇨ Weigh first component (such as milk). The graphic weighing aid showing tolerance tags facilitates weighing according to target value (such as 470 g).

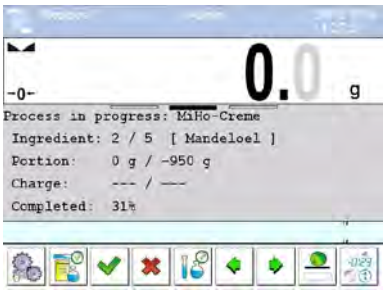
The bargraph of the weighing aid runs from the left to the right and progresses according to the weight placed on the weighing scale.

Weight of component is below target weight	Weight has reached target weight and is within tolerance range.	Weight of component exceeds target weight
		

⇨ The target weight reached will be saved according to the application specific setting  or  (see chap. 12.2) **automatically** after stability has been established or **manually** after pressing the **PRINT** key.



⇨ The weighing scale is ready for weighing a second component.

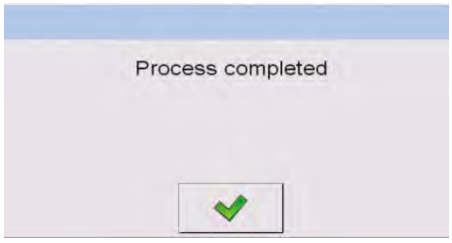


⇨ Weigh second component such as [almond oil] according to target value (such as 950 g).

⇨ Then weigh additional components as described above.
Every time you press the **PRINT** key, the weighing result will be saved and logged provided an optional printer is connected.

English

⇨ After weighing all components you will see the message <End of process >.

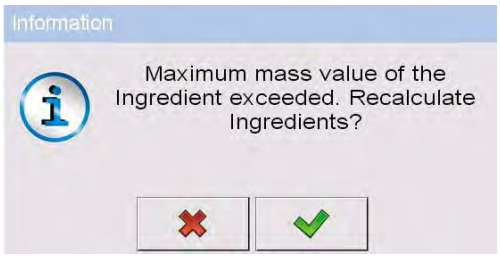


⇨ Confirm message by ✔.

⇨ This also completes the log for the recipe. For printout example see chapter below 12.5

Back calculation function:

When you confirm an exceeded target weight by pressing the **PRINT** key, a query will appear: < Calculate Ingredient>:



After confirmation by pressing ✔, new target weights for the other components proportional to the exceeded weight value will be calculated.

English

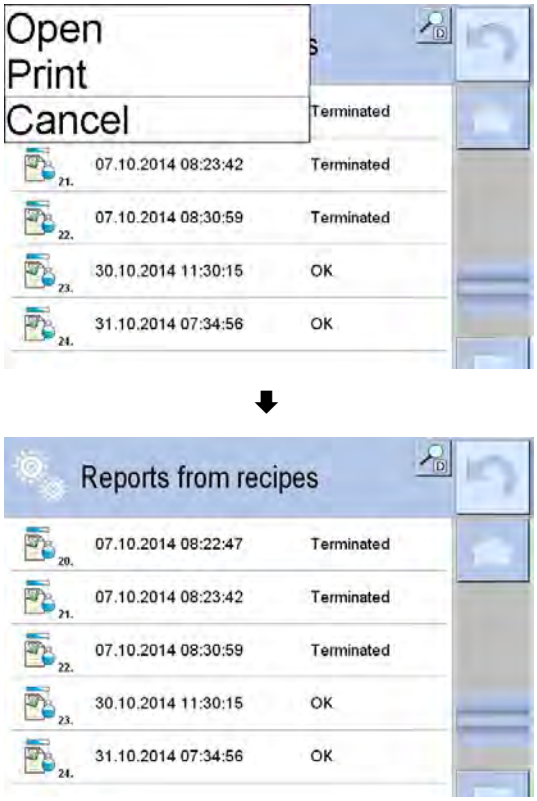
12.5 Log recipe

When < Berichtsausdruck > is enabled (see chap.12.2)
a log will be issued automatically after every formulation.

At the same time the logs are saved under „ **Reports** / **Reports from recipes** “.

English

To <Open / Print> keep your finger pressed on the desired report until the context menu is displayed.

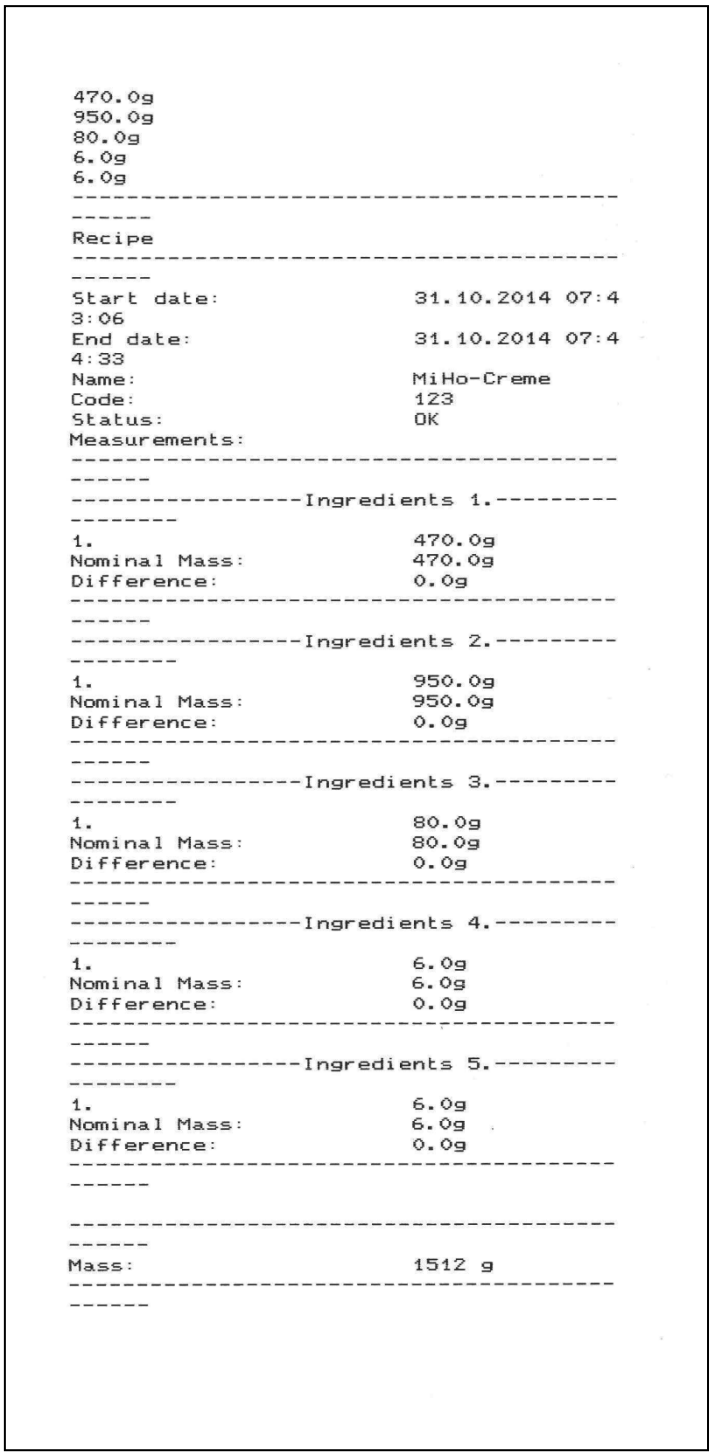


The log type can be defined in the menu **Devices / Printer / Printouts / Printout Samples for Recipe Log"**, see chap. 7.3.2

Settings default log:

```
------------------------------------------------
Recipe
------------------------------------------------
{40:Starting date:,-25}{240}
{40:Completion date:,-25}{241}
{40:Name:,-25}{220}
{40:Code:,-25}{221}
{40:Status:,-25}{242}
{40:Measurements:,-25}
------------------------------------------------
{245:(50,-20)  (7)(11)
(40:Nominal weight:,-25)(246)(11)
(40:Difference:,-25)(247)(11)
------------------------------------------------
}
------------------------------------------------
{40:Weight:,-25}{244}
------------------------------------------------
```

Printout example default log (KERN YKB-01N):



```
470.0g
950.0g
80.0g
6.0g
6.0g
------------------------------------------
------
Recipe
------------------------------------------
------
Start date:                 31.10.2014 07:4
3:06
End date:                   31.10.2014 07:4
4:33
Name:                       MiHo-Creme
Code:                       123
Status:                     OK
Measurements:
------------------------------------------
------
-----------------Ingredients 1.---------
--------
1.                          470.0g
Nominal Mass:               470.0g
Difference:                 0.0g
------------------------------------------
------
-----------------Ingredients 2.---------
--------
1.                          950.0g
Nominal Mass:               950.0g
Difference:                 0.0g
------------------------------------------
------
-----------------Ingredients 3.---------
--------
1.                          80.0g
Nominal Mass:               80.0g
Difference:                 0.0g
------------------------------------------
------
-----------------Ingredients 4.---------
--------
1.                          6.0g
Nominal Mass:               6.0g
Difference:                 0.0g
------------------------------------------
------
-----------------Ingredients 5.---------
--------
1.                          6.0g
Nominal Mass:               6.0g
Difference:                 0.0g
------------------------------------------
------

------------------------------------------
------
Mass:                       1512 g
------------------------------------------
------
```

English

13 Animal weighing

This function is used to weigh unstable articles such as live animals. There are two different start modes available for selection:
Manual (via keystroke)
or
Automatic (automatic start after exceeding LO threshold).

13.1 Select application

Tap for instance the icon in the top left corner of the window and select the application **< Weighing animals>** or call it up in the menu (Details see in chap. 8.1).

The display for weighing animals will appear:

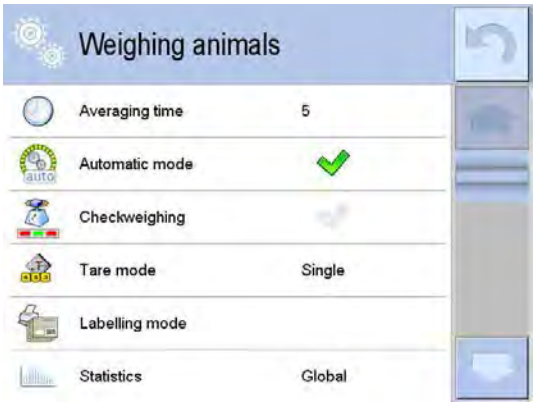
The function keys below as well as a special info field for fomulation are enabled by default.

	For application specific settings see chap. 8.2
	Start weighing cycle

	Selecting further function keys, see chap. 7.4.2

13.2 Application specific settings

⇨ Tap icon  in the bottom left corner of the window or call it up from the menu (details see chap.8.2).
The application specific settings will be displayed.



Tap button.

Function deactivated

Function activated

Explication:

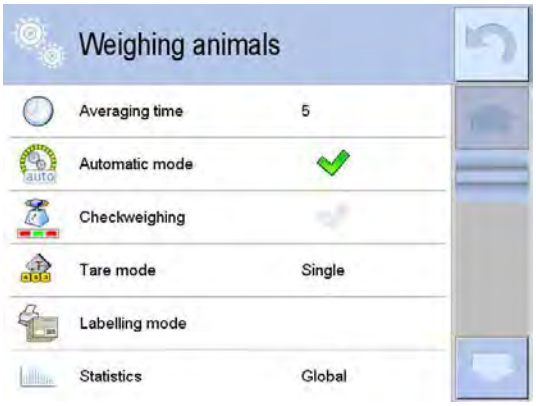
	Average time	see chap. 13.2.1
	Automatic mode	see chap. 13.2.2
	Checkweighing	see chap. 9.3
	Tare mode	see chap. 9.4
	Labelling mode	see chap. 9.5.
	Statistics	see chap. 9.6.

The setting options for the application “Weighing Animals“ are with a few exceptions identical to those of the application “Weighing“. Subsequently only the divergent settings are described.

English

13.2.1 Average time

This function is used to set the duration for the weighing cycle based on which average is calculated.

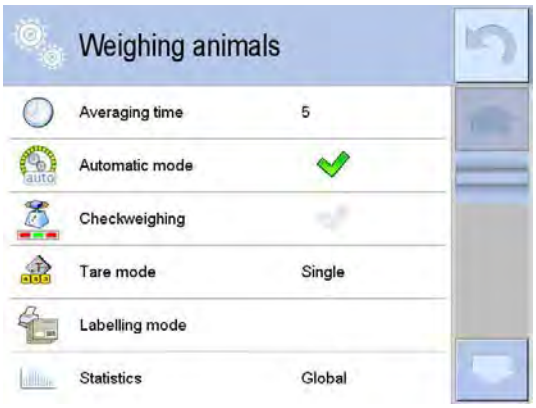


Tap **<Averaging time>**.

Enter time in input window and import by tapping ✔ .

Selectable 1 to 99 seconds
(default setting 5 s)

13.2.2 Auto start



Tap **<Automatic mode>**.

✔ Function deactivated

✔ Function activated

13.3 Dynamic weighing using manual start

Condition: For auto start disabled see chap. 13.2.2.

⇨ When using a weighing container, tare with the help of the **TARE** key.

⇨ Place load on weighing scale and press ✔ to start dynamic weighing.

⇨ The progress bar and the set average time will be displayed during dynamic weighing.

⇨ To cancel measurement, press ✖

⇨ The result and the set average time will be displayed.

⇨ Remove load and confirm by pressing ✔.
Then the balance is ready for further measurements.

English

13.4 Dynamic weighing with automatic start

System requirements:
Auto start enabled, see chap. 13.2.2.

For LO threshold <  >defined, see chap. 7.1.4.

⇨ When using a weighing container, tare with the help of the **TARE** key.

⇨ Place load on weighing scale and dynamic weighing will start automatically after reaching the LO threshold.

⇨ The progress bar and the set average time will be displayed during dynamic weighing.

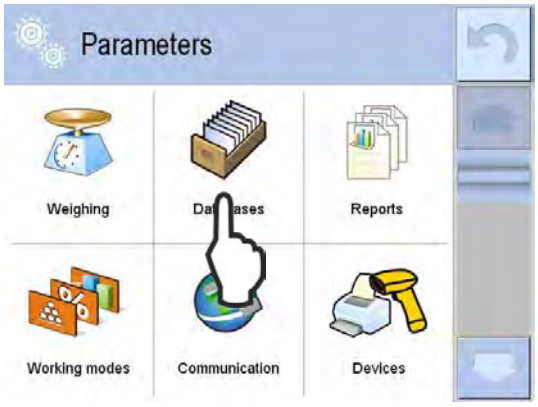
⇨ To cancel measurement, press 

⇨ The result and the set average time will be displayed.

⇨ Remove load.
Then the balance is ready for further measurements.

14 Database

Call up database menu:



⇨ Press MENU.

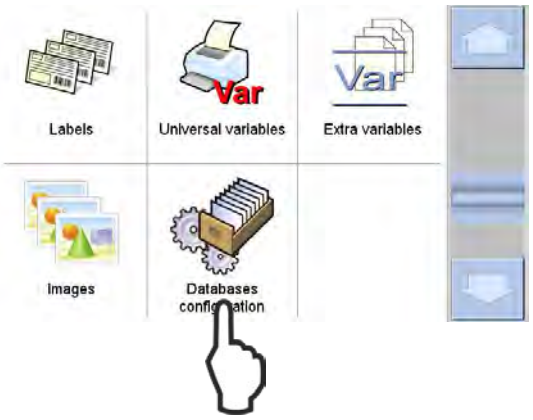
⇨ Tap <**Datenbases** > button.

The menu for databases will be displayed:

- Products, see chap. 14.1.3, 14.7.2
- Operators, see chap. 14.1.3, 14.7.1
- Clients, see chap. 14.1.3, 14.7.3
- Dosing processes, not documented
- Recipes, see chap. 14.7.5
- Vehicles, not documented
- Identification processes
  Not documented; for further information please contact KERN
- Packages, see chap. 14.7.7
- Warehouses, see chap. 14.7.8
- Labels
- Universal variables, see chap. 14.7.9
- Extra variables, see chap. 14.1.4
- Images, see chap.14.7.10
- Database Configuration, see chap. 14.1

English

14.1 Configuring database (administrator only)



⇨ Go to menu (See chap. 14) and tap **< Database configuration >**.

Menu will appear:

- Accessibility of databases, see chap. 14.1.1
- Categories, see chap. 14.1.2
- Products, see chap. 14.1.3
- Operators, see chap. 14.1.3
- Clients, see chap. 14.1.3
- Extra variables, see chap. 14.1.4
- Records preview, see chap. 14.1.5
- Import, see chap. 14.1.6
- Export, see chap. 14.1.6

English

14.1.1 Accessibility of databases

This is used to determine which menu items are to be available in the <Database> menu, (see chap. 14)

Tap **< Databases accessibility >**.

Function deactivated

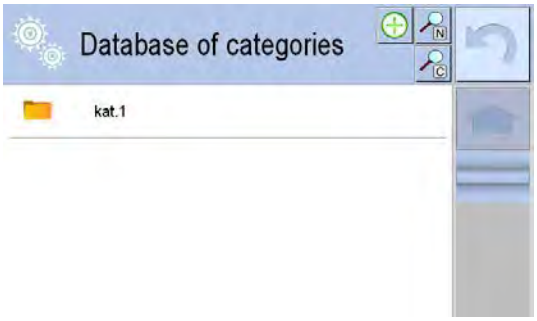
Function activated

14.1.2 Categories

Products may generally be subdivided into product categories.
This function is used to set the categories available in the product database and allows you to display products according to these categories in the product database.

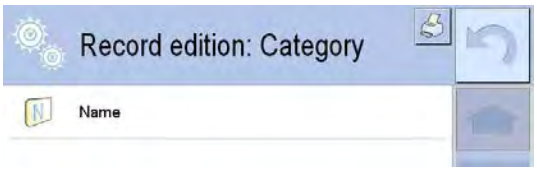
1. Determining categories

Tap **<Database of categories >**.



⇨ Add category by < > .

⇨ Confirm query “Create new data record?“ by tapping .



⇨ Tap **<Name>**.

⇨ Enter name (such as cat. 1) in editing window and import by tapping ✔ .

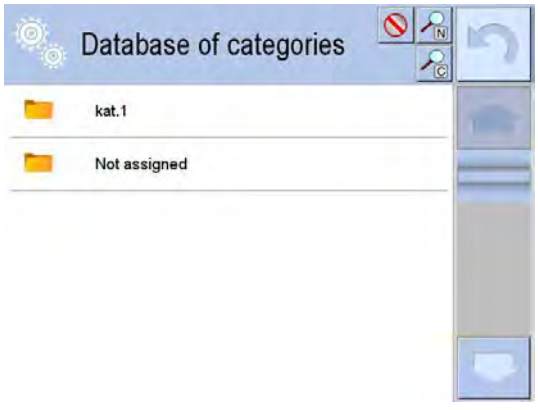
1. Enable display of categories

Tap **< Products categories>**.

✔ **Display enabled**

✔ **Display disabled**

Display example on calling up **<Database> / <Product>:**

✔	✔
	
The products are subdivided in: ➢ Products with assigned category ➢ Products without assigned category	No organised display by assigned categories.

14.1.3 Products / Operators / Clients

This is used to determine which data is to be made available in the databases “products, operators or clients.

Tap **< Products >**.

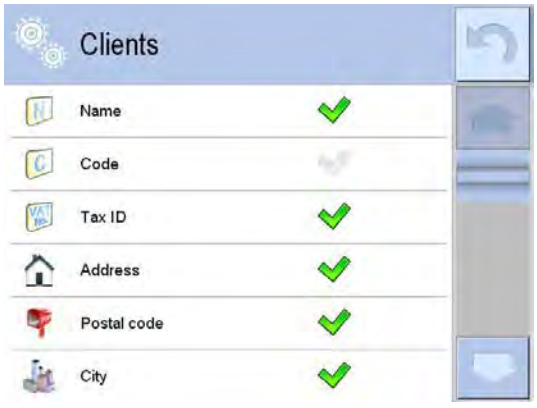
disabled

enabled

Tap **< Operators >**.

disabled

enabled



Tap **< Clients >**.

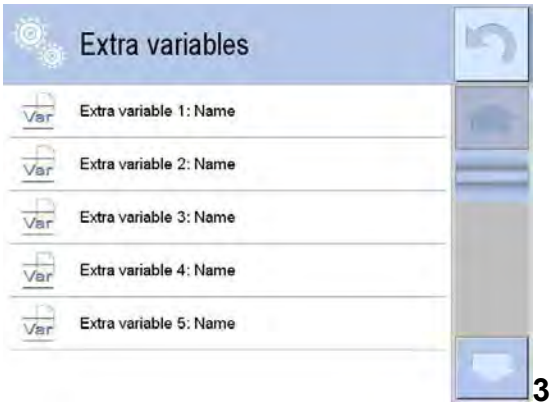
disabled

enabled

English

14.1.4 Extra variables

This is used to define extra variables that are not available on the list of variables, see chap. 19.1



3

⇨ **< Extra variable x:** Tap **Name >**.

⇨ Enter variable in editing window and import by tapping ✔.

14.1.5 Data record format

⇨ Tap **< Records preview >**.

Display as raster

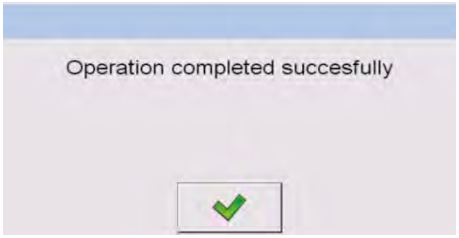
Display as list

Display example on calling up **<Database> / <Product>:**

14.1.6 Importing / exporting database file from USB storage medium

⇨ Connect USB storage medium to USB port.

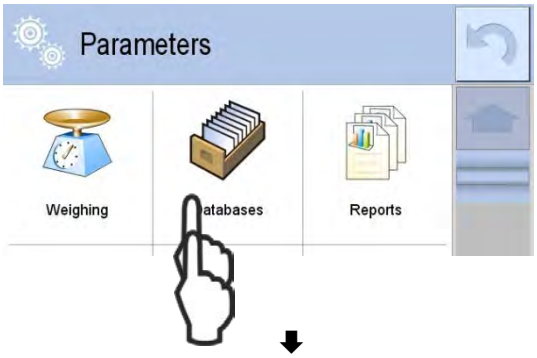
⇨ Tap **< Import >** or **< Export >**. Import / Export will start automatically.



⇨ When the process is complete, confirm message “Process completed successfully“ by tapping ✔.

English

14.2 Search for Data Record / Add Data Record



⇨ Call up **< Databases >**, see chap. 14.

⇨ Select <**Product**>.

The following operations will be available on tapping the icon in the top right corner of the window:

Search data record by name

Search data record by code

Add data record (administrator only)

1. Search data record by name

⇨ Tap

⇨ Go to the displayed editing window, enter **<Name>** and confirm by tapping . The data record containing the entered name will be loaded automatically.

2. Search data record by code

⇨ Tap

⇨ In the displayed editing window, enter **<Code>** and confirm by tapping .
The data record containing the entered code will be loaded automatically.

3. Add data record

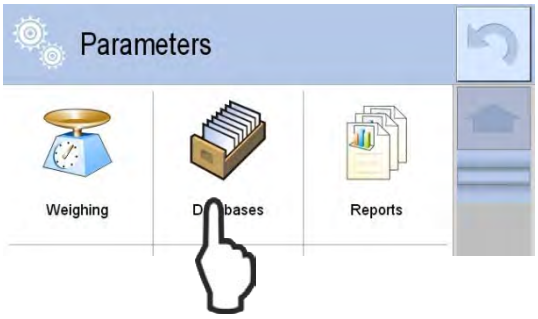
⇨ Tap

⇨ Confirm query with .

⇨ The new data record will be loading automatically for editing.

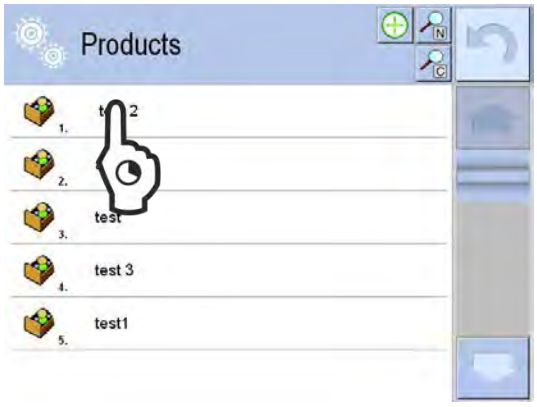
English

14.4 Deleting data record (administrator only)

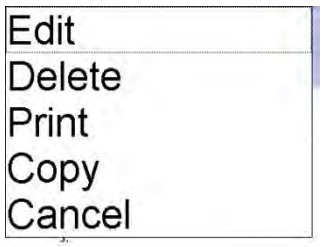


⇨ Call up **< Databases >**, see chap. 14.

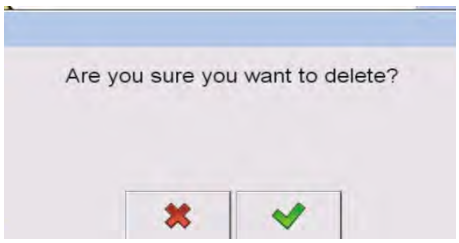
⇨ Select <**Product**>.



⇨ Keep your finger pressed on the data record to be deleted until the context menu appears.

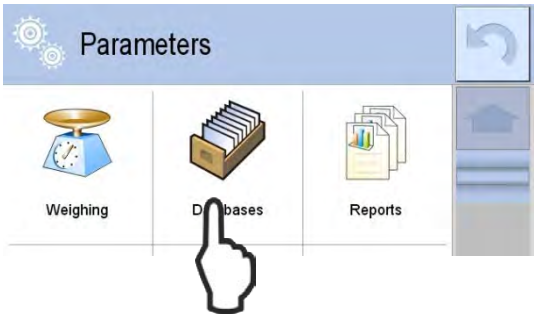


⇨ Press **<Delete>**



⇨ Confirm query with ✔.

14.5 Print data record



⇨ Call up **< Databases >**, see chap. 14.

⇨ Select <**Product**>.

⇨ Select data record to be printed

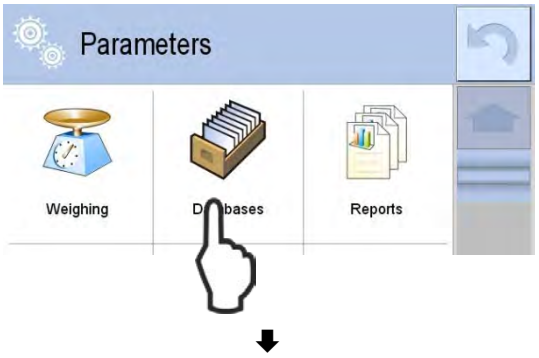
Tap .
When an optional printer is connected, data will be edited.

Contents of data output is defined under **<Devices / Printer / Print documents / Product Printout Sample>**, see chap. 7.3.2

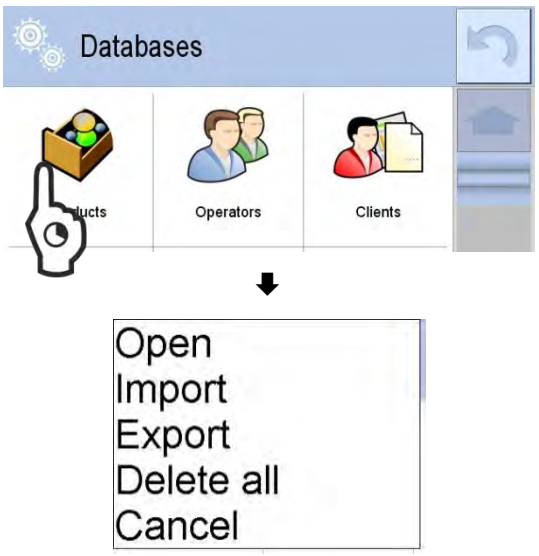
English

14.6 Basic data record operations via context menu

1. Context menu “databases“



⇨ Call up **< Databases >**, see chap. 14.

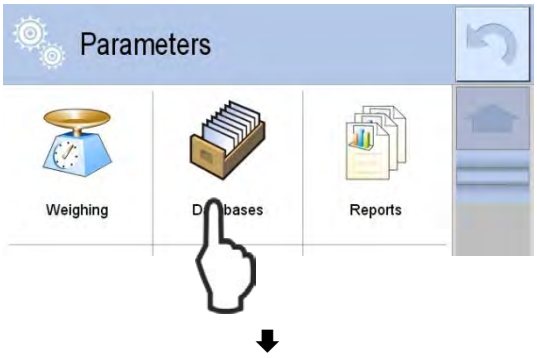


⇨ Keep your finger pressed on the selected item (such as <Product>) until the context menu appears.

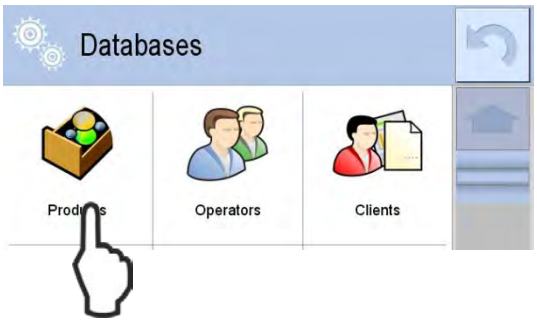
Open	Open content of folder
Import	Import file from USB storage medium
Export	Export file from USB storage medium
Delete all	Delete all data records in database
Cancel	Cancel context menu

English

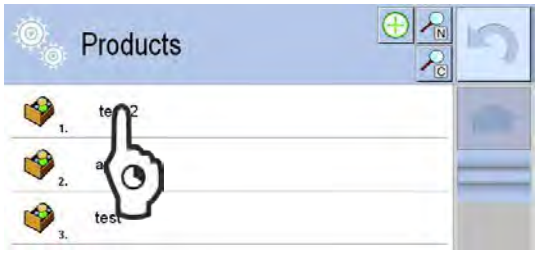
2. Context menu “data record“

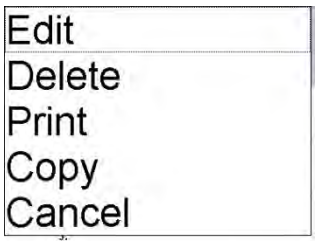


⇨ Call up **< Databases >**, see chap. 14.



⇨ Select desired submenu such as **<Product>**.





⇨ Keep your finger pressed on the data record until the context menu appears.

Editing	Edit data record
Clear	Data record deletion
Print	Print data record
Copy	Copy data record
Cancel	Cancel context menu

English

14.7 Edit databases (administrator only)

Sequence of operations:

- ⇨ Open database menu **< Database>,** see chap. 14.
- ⇨ Select Database in menu and tap desired item (See chap. 14) The list of parameters will appear.

14.7.1 User database

Parameter overview:

		Name	User name.
		Code	User code
		Password	Password for logon (max. 16 characters)
		Authorisations	Access level of user
		Card number	Number of transponder card for logon
		Function	Assign applications to user
	auto	**Automatic**	Automatic mode: After the user has logged on the weighing scale will start working in the most recently used operating mode.
		Change function	Create fixed assignment to logged-on user. The weighing scale will start in the set operating mode. The option “None“, disables this function.
		Identification procedure	Assign identification procedure to logged-on user

English

14.7.2 Product database

Parameter overview:

	Name	Name of product
	Description	Additional description of product
	Code	Product code
	EAN code	EAN code of product (max 20 digits)
	Weight 1	Single weight of product
	Dosing orifice 2)	Define number of orifices for correct dosing
	Orifices for fast dosing [2)]	Define number of orifices for fast dosing
	Correction 1 [2)]	Correction value dosing for platform 1
	Correction 2 [2)]	Correction value dosing for platform 2
	Correction 3 [2)]	Correction value dosing for platform 3
	Correction 4 [2)]	Correction value dosing for platform 4
MAX	**Max correction** [2)]	Max correction value for dosing
min	**Min** [3)]	Lower limit value for checkweighing
max	**Max** [3)]	Upper limit value for checkweighing
	Type of deviation [4)]	Admissible tolerance for recipe component in [g] or [%]
	Lower deviation [4)]	Admissible lower tolerance for recipe component
	Upper deviation [4)]	Admissible upper tolerance for recipe component
	Tare	Tara value of product (automatically loaded if product is selected from database ts)
	Cost	Unit price of product
£$€	**Currency**	Currency
	FPVO [5)]	Not documented
	Number of expiration days	Number of expiration days
	Date	Product date
VAT	**VAT**	VAT for product in [%]

English

	**Ingredients**	Editing field for entering recipe component
	**Label**	Assign single label sample to product
	**Label K**	Assign label K sample to product
	**Label KK**	Assign single label KK sample to product
	**Categorie**	Assign category to product
	**Graphic**	Assign graphic to product
	**Identification procedure**	Assign identification procedure to product

1) Designation depends on selected application:

Application	**Designation**
Weighing Dosing Formulation Animal weighing Density determination	Weight
Parts counting	Parts counting
Percent determination	Mass of reference weight

2) Available in dosing mode only
3) Not available in recipe mode.
4) Available in recipe mode only
5) Available in FPVO mode only

English

14.7.3 Client database

Parameter overview:

	Name	Name of client
	Code	Client code
	Tax ref. number	Tax ID number
	Address	Address of client
	Post code	Post code of client
	Place	Place of residence of client
	Discount	Discount of client
	Label	Sample of label assigned to client

14.7.4 Database “Dosing Processes“

Parameter overview:

	Name	Name of dosing process
	Code	Code of dosing process
	Platform 1	Platform 1
	Platform 2 *	Platform 2
	Platform 3 *	Platform 3
	Platform 4 *	Platform 4

***) –** The number of platforms depends on the platforms defined in the terminal.

English

14.7.5 Database “Recipes“

Parameter overview:

	Name	Name of recipe
	Code	Code of recipe
	Ingredients	Define components of recipe
	Number of ingredients	Display “Number of components in recipe“
	Weight of recipe	Total weight of recipe
	Type of batch	Type of batch
	Batch	Number of batches

14.7.6 Database “Identification Processes“

Parameter overview:

	Name	Name of identification process
	Code	Code of identification process
	Process assistant	Submenu for definition of identification process

14.7.7 Database “Packaging“

Parameter overview:

	Name	Name of packaging
	Code	Code of packaging
	Weight	Weight of packaging

14.7.8 Database “Storage“

Parameter overview:

	Name	Name of storage space
	Code	Code of storage space
	Description	Detailed description of storage space

14.7.9 Database “Universal Variables“

This database contains the universal variables assigned to the function keys, Var 1, Var 2, Var 3, Var 4, Var 5 .

Parameter overview:

	Code	Code of label
	Value	Value of universal variables for printouts

14.7.10 Database “Graphic“

How to create a new data record:

⇨ Connect USB storage medium to USB port.

⇨ Call up submenu **< Database / Graphics >** .

⇨ Use key to add a new data base. Message: Confirm **<Create new database?>** by tapping .

⇨ Tap <**Name>**; enter name of graphic in editing window and import by tapping .

⇨ Tap < **Graphics>**. This action opens the content of the main folder in the USB storage medium.

⇨ Select file. The display returns to the previous submenu.

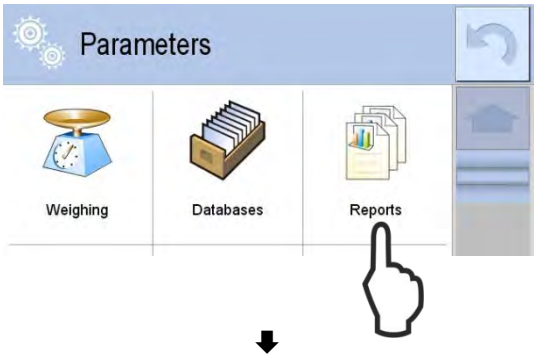
File format ***.jpg**, ***.png**, at maximum resolution **150x150** pixel, where:

- Optimal resolution for viewing data records of products in format “**List**” **57x5**7 pixel, see chap. 14.1.5
- Optimal resolution for viewing data records of products in format “**Raster“ 133x133** pixel., see chap. 14.1.5.

English

15 Logs

How to call up log menu:



⇨ Press MENU.

⇨ Tap **<Reports>** button.

The menu for logs will be displayed:

- Reports from weighing reports, see chap. 15.3
- Reports from dosing
- Reports from recipes
- Conbtrol Reports
- Average tare Reports
- Reports of vehicle scale
- Density Reports
- Reports of differential weighing activities
- Delete older data, see chap. 15.2
- Reports configuring see chap. 15.1

15.1 Enabling accessibility to logs

This is used to determine which menu items are to be accessible in menu **< Reports >** (see chap. 15).

Tap **< Reports configuration >**.

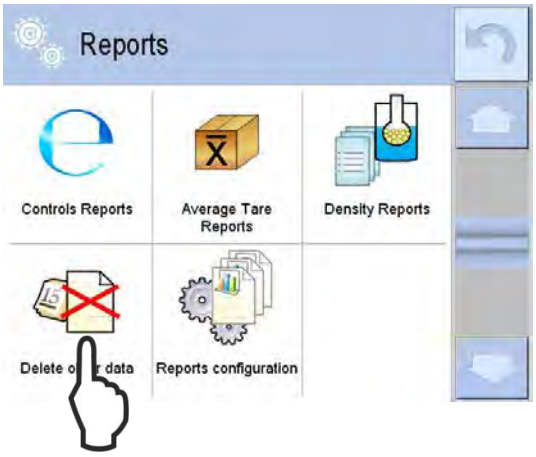
Tap **<Reports accessibility>**.

Log not available

Log available

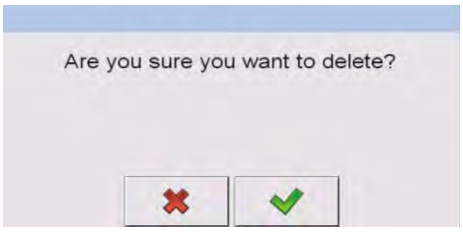
English

15.2 Deleting older data (advanced users only)



⇨ Tap **< Delete older data >**.

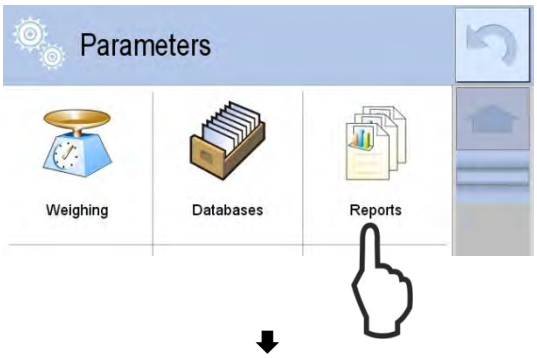
⇨ Enter date up to which data is to be deleted:
Enter year, month and day one after the other and import by tapping ✔.



⇨ Confirm deleting process with ✔.
Information about deleted data records will be shown on-screen.

English

15.3 Weighing logs



⇨ Tap **<Reports>**, see chap.15.

⇨ Select **<Reports from weighing records>**.

Menu will appear:

- Weighing / Alibi, see chap. 15.3.1
- Filter, see chap. 15.3.2
- Report printout, see chap. 15.3.3
- Graph of weighing procedures, see chap. 15.3.4
- Exporting data of weighing activities, see chap. 15.3.5
- Counter of weighing activities, see chap. 15.3.6

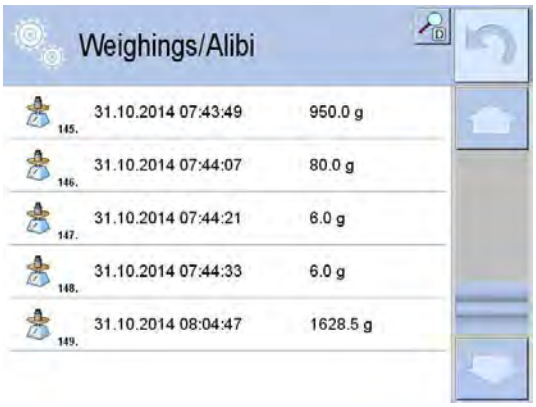
English

15.3.1 Alibi memory

If required by statutory provisions, all weighing activities may be traced in the alibi memory.
All weighing activities including stipulated data are saved to the alibi log file.

Call up to alibi log file:

⇨ Tap **< Weighings/Alibi >**, see chap. 15.3



⇨ The alibi data records for the last five weighing activities will be displayed.

Quick search for date:

Tap  .

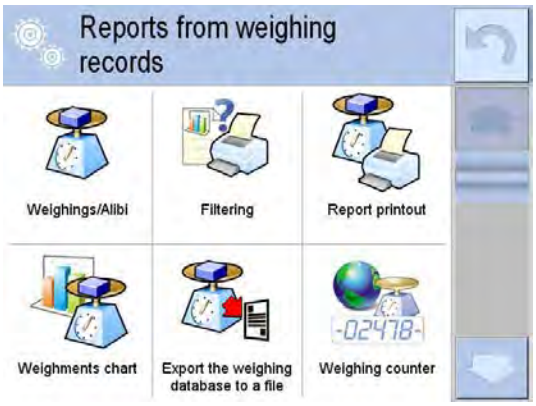
⇨ Enter year, month, day, hour, minute one after the other and import by tapping  .

⇨ The list of log files will be displayed. The file you searched can be found on top.

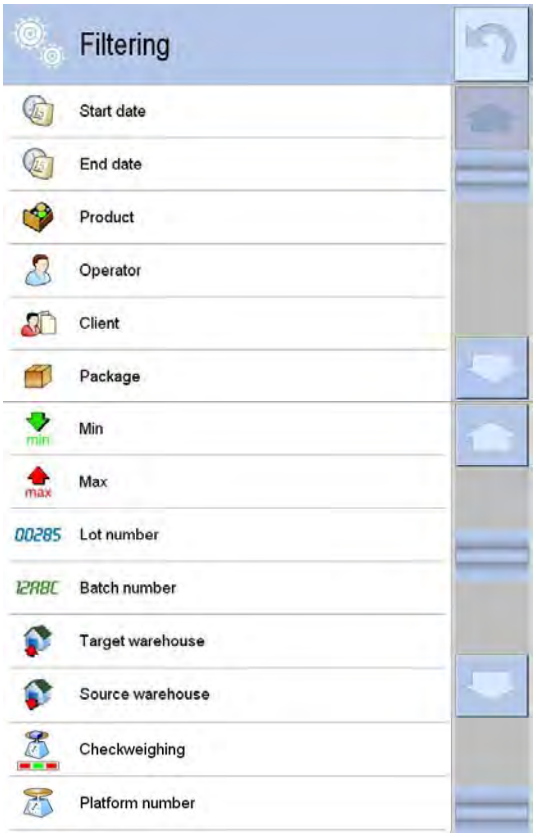
English

15.3.2 Filter

This function is used to filter the printouts of alibi log files by specific criteria.

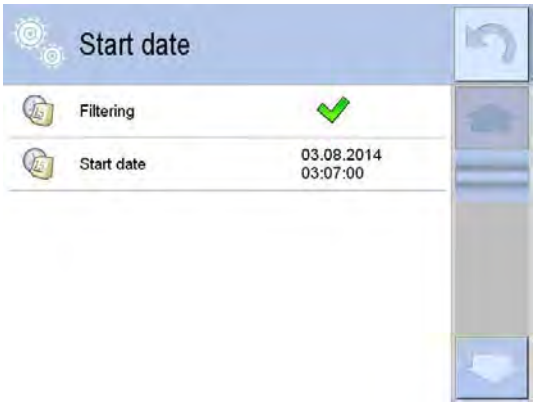


⇨ Select **< Filtering >**, see chap. 15.3



A list will be displayed that shows the criteria by which you can filter data.

English



⇨ Tap Criteria such as starting date.

✔ Filter enabled

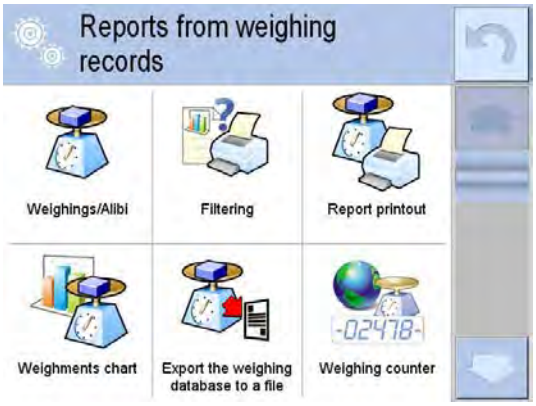
✔ Filter disabled

⇨ Tap starting date.

⇨ Enter year, month and day one after the other and import by tapping ✔.

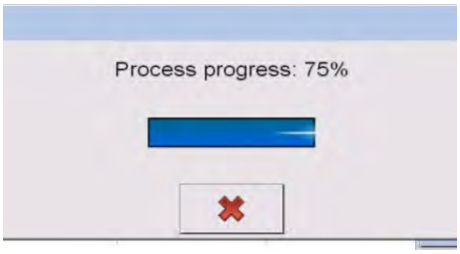
15.3.3 Record print out

Call up to alibi log file:



⇨ Select **< Report printout >**, see chap. 15.3.

The log printout takes place according to the criteria defined in chap. 15.3.2



For large amounts of data you will see the message “process status“.

Settings default log:

```
----------------------------------------
Log of weighing activities
----------------------------------------
{40:Starting date:,-20}{101}
{40:Completion date:,-20}{102}

Weighing activities
{100:
   (40:Date:,-10)(4)
   (40:Weight:,-10)(6) (10)
}----------------------------------------
(40:Number of weighing activities:,-20)(116)
{40:Number of weighing activities:,-20}{116}{11}
```

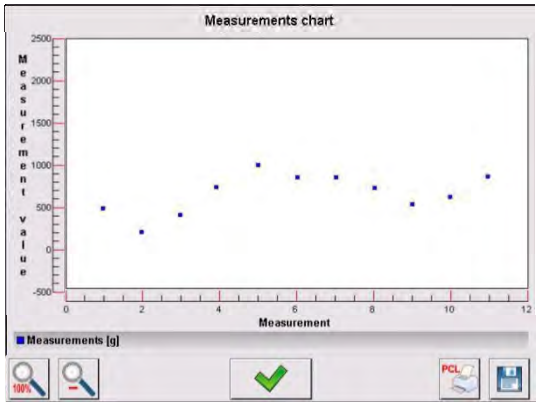
Printout example KERN YKB-01N:

```
----------------------------------------
Report from weighments
----------------------------------------
Start date:          03.08.2014 03:07:00
End date:            07.10.2014 12:00:00

Weighing records
1.
   Date:      12.09.2014 11:29:17
   Mass:      450.3 g

2.
   Date:      12.09.2014 11:29:49
   Mass:      450.3 g

3.
   Date:      20.09.2014 08:02:06
   Mass:      99.97 %

4.
   Date:      30.09.2014 10:02:36
   Mass:      383.7 g

5.
   Date:      01.10.2014 09:41:03
   Mass:      50.0 g

6.
   Date:      01.10.2014 09:41:27
   Mass:      100.0 g

7.
   Date:      01.10.2014 09:41:41
   Mass:      50.0 g
```

The log type can be defined in the menu **Devices / Printer / Printouts / Printout Samples of weighings"**, see chap. 7.3.2

15.3.4 Display weighing procedures as a diagram

⇨ Select **<Weigments chart >**, see chap. 15.3.



⇨ The weighing values will be displayed in a diagram.

⇨ The following options are available on the bottom bar.

View “Complete View“

Zoom in

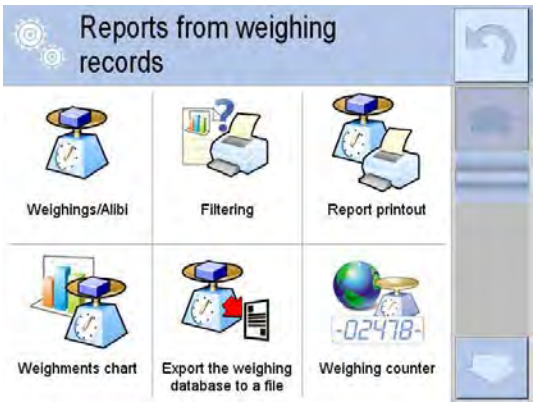
Exit diagram view

Print diagram (printer type PCL)

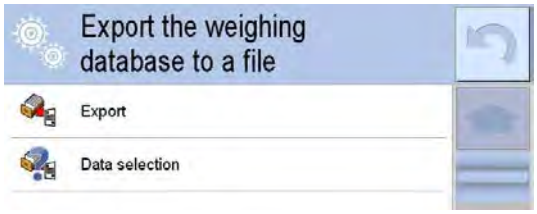
Save diagram as (**bmp**) file to USB storage medium

English

15.3.5 Export weighing data to USB storage medium

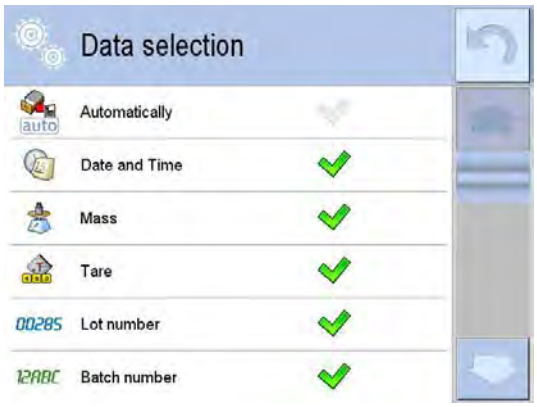


⇨ For selecting **<Export the weighing database to a file>** see chap. 15.3.



⇨ Tap **<Data selection>**

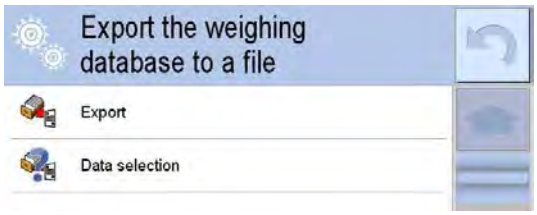
The menu telling you which criteria can be used for filtering will be displayed.



⇨ Tap Criteria

✓ Filter enabled

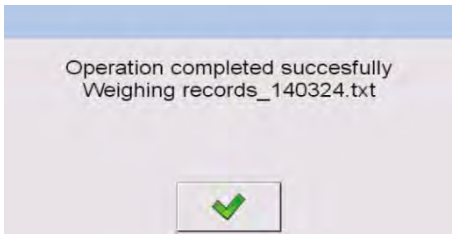
✓ Filter disabled



⇨ Connect USB storage medium to USB port.

⇨ Tap **<Export>**
Export will be started automatically.

For large amounts of data you will see the message “process status“.



⇨ When the process is complete, confirm message “Process completed successfully“ by tapping ✓

English

15.3.6 Counter for weighing activities

This function is used to edit the counter for weighing activities.

⇨ For selecting < Weighing counter > see chap. 15.3.

Enter the desired values in the editing window and import by tapping ✔.

English

16 Communication

16.1 Overview interface commands

The weighing scale recognises the following commands.

Commands	Function
Z	Zeroing
T	Taring
UT	Retrieve tare value
LT	Set tare value
S	Send stable weighing value in standard weighing unit
SI	Send weighing value immediately in standard weighing unit
SIA	Send weighing values of all platforms in default unit immediately
SU	Send stable weighing value in current weighing value
SUI	Send weighing value immediately in current weighing unit
C1	Start continuous output in standard weighing unit
C0	Stop continuous output in standard weighing unit
CU1	Start continuous output in current weighing unit
CU0	Stop continuous output in current weighing unit
DH	Set value for lower threshold
UH	Set value for upper threshold
ODH	Retrieve value for lower threshold
OUH	Retrieve value for upper threshold
SS	Press simulation “PRINT key“
PP	Change platform
PC	Send all implemented commands

Finish commands by setting CR/LF character.

English

16.2 General response format

Commands	Function
XX␣A *CR LF*	Command accepted; executing command
XX␣D *CR LF*	Execution of previously started command completed (Occurs only after XX_A auf)
XX␣I *CR LF*	Command valid but can currently not be executed
XX␣^ *CR LF*	Command valid but range limits were exceeded
XX␣v *CR LF*	Command valid but short of range limits
XX␣OK *CR LF*	Command accepted and executed
ES␣ *CR LF*	Invalid entry
XX␣E *CR LF*	Time limit for stabilisation weighing scale display was exceeded

ℹ	**XX**	Command such as Z = reset to zero
	␣	Space character (20h, 0x20)

16.3 Detailed information about interface logs

16.3.1 Zeroing

Befehl: **Z** *CR LF*

Possible responses:

Z␣A *CR LF*	Command accepted; executing command
Z␣D *CR LF*	Execution of previously started command completed
Z␣A *CR LF*	Command accepted; executing command
Z␣^ *CR LF*	Command valid but zero setting range was exceeded
Z␣A *CR LF*	Command accepted; executing command
Z␣E *CR LF*	Time limit for stabilisation of weighing scale display was exceeded
Z␣ *CR LF*	Command valid but can currently not be executed

16.3.2 Taring

Command: **T** *CR LF*

Possible responses:

T␣A *CR LF*	Command accepted; executing command
T␣D *CR LF*	Execution of previously started command completed
T␣A *CR LF*	Command accepted; executing command
T␣^ *CR LF*	Command valid but tare range was exceeded
T␣A *CR LF*	Command accepted; executing command
T␣E *CR LF*	Time limit for stabilisation of weighing scale display was exceeded
T␣I *CR LF*	Command valid but can currently not be executed

English

16.3.3 Retrieve tare value

Command: **OT** *CR LF*

Answer:

1	2	3	4 - 12	13	14 - 16	17	18	19
O	**T**	␣	Tare	␣	Unit	␣	*CR*	*LF*

Tare value: - 9 characters with right-justified alignment
Unit: - 3 characters with left-justified alignment

i	Tare values are always issued in adjusting unit

16.3.4 Set tare value

Command: **UT␣TARA** *CR LF*, (**TARA** = tare value)

Possible responses:

UT␣OK *CR LF*	Command executed
UT␣I *CR LF*	Command valid but can currently not be executed
ES *CR LF*	Invalid entry

i	Set tare value: • Mark decimal places with a dot • Without weighing unit

16.3.5 Send stable weighing value in standard weighing unit

Command: **S** *CR LF*

Possible responses:

S␣A *CR LF*	Command accepted; executing command
S␣E *CR LF*	Time limit for stabilisation of weighing scale display was exceeded
S␣I *CR LF*	Command valid but can currently not be executed

1	2-3	4	5	6	7-15	16	17-19	20	21
S	␣	Stability icon*	␣	Signs	Weight	␣	Unit	CR	LF

Example:

S CR LF	Sent command: Send stable weighing value in standard weighing unit
S ␣ A CR LF	Command accepted; executing command
S␣␣␣␣ -␣␣␣␣␣␣ 8 . 5 ␣g␣␣*CR LF*	Command executed, Weighing value is issued in default weighing unit

i	**Stability sign***	
	?	unstable (3Fh, 0x3F)
	␣	stable (20h, 0x20)

16.3.6 Send weighing value immediately in standard weighing unit

Command: **SI CR LF**

Possible responses:

SI␣I *CR LF*	Command valid but can currently not be executed

1	2	3	4	5	6	7-15	16	17-19	20	21
S	**I**	**␣**	Stability icon	**␣**	Signs	Weight	**␣**	Unit	CR	LF

Example:

S I *CR LF*	For sent command see chap. 16.1
S I␣?␣␣␣␣␣␣1 8 . 5␣k g␣*CR LF*	Command executed Weighing value is issued in default weighing unit

English

16.3.7 Send weighing values for all platforms in default weighing unit immediately

Command: **SIA** *CR LF*

Possible responses

SIA␣I *CR LF*	Command valid but can currently not be executed

1	2	3	4	5	6	7-15	16	17-19	20	21
S	**I**	**␣**	Stability icon	**␣**	Signs	Weight	**␣**	Unit	CR	LF

n **-** Number of platform
Weight - 9 characters with right-justified alignment
Unit - 3 characters with left-justified alignment

Example (two connected platforms):

S I A *CR LF*	For sent command see chap. 16.1
P 1␣?␣␣␣␣␣1 1 8 . 5␣g␣␣CR LF	Command executed, Weighing values of platforms will be issued in default weighing unit
P 2␣␣␣␣␣␣␣␣␣3 6 . 2␣k g␣CR LF	

16.3.8 Send stable weighing value in current weighing value

Command: **SU** *CR LF*

Possible responses:

SU␣A *CR LF* **SU␣E** *CR LF*	Command accepted; executing command
	Time limit for stabilisation of weighing scale display was exceeded
SU␣I *CR LF*	Command valid but can currently not be executed
SU␣A *CR LF*	Command accepted; executing command

1	2	3	4	5	6	7-15	16	17-19	20	21
S	**U**	**␣**	Stability icon	**␣**	Signs	Weight	**␣**	Unit	CR	LF

Example:

S U *CR LF*	For sent command see chap. 16.1
S U _ A *CR LF*	Command accepted; executing command
S U␣␣␣-␣␣1 7 2 . 1 3 5␣N␣␣*CR LF*	Command executed. Weighing value will issued in current weighing unit

16.3.9 Send weighing value immediately in current weighing unit

Command: **SUI** *CR LF*

Possible responses:

SUI␣I *CR LF*	Command valid but can currently not be executed

1	2	3	4	5	6	7-15	16	17-19	20	21
S	**U**	**I**	Stability icon	␣	Signs	Weight	␣	Unit	CR	LF

Example:

S U I *CR LF*	For sent command see chap. 16.1
S U I ?␣-␣␣␣5 8 . 2 3 7␣k g␣CR LF	Command executed. Weighing value will issued in current weighing unit

16.3.10 Start continuous output in standard weighing unit

Command: **C1** *CR LF*

Possible responses:

C1␣I *CR LF*	Command valid but can currently not be executed
C1␣A *CR LF*	Command accepted; executing command
	Weighing value will be issued in default weighing unit

1	2	3	4	5	6	7-15	16	17-19	20	21
S	**I**	␣	Stability icon	␣	Signs	Weight	␣	Unit	CR	LF

16.3.11 Stop continuous output in standard weighing unit

Command: **C1** *CR LF*

Possible responses:

C0␣I *CR LF*	Command valid but can currently not be executed
C0␣A *CR LF*	Command accepted; executing command

16.3.12 Start continuous output in current weighing unit

Command: **CU1** CR LF

Possible responses:

CU1␣I *CR LF*	Command valid but can currently not be executed
CU1␣A *CR LF*	Command accepted; executing command
	Weighing values will be issued in current weighing unit

1	2	3	4	5	6	7-15	16	17-19	20	21
S	**U**	**I**	Stability icon	␣	Signs	Weight	␣	Unit	CR	LF

16.3.13 Stop continuous output in current weighing unit

Command: CU0 CR LF

Possible responses:

CU0␣I *CR LF*	Command valid but can currently not be executed
CU0␣A *CR LF*	Command accepted; executing command

16.3.14 Set value for “Lower Threshold“

Message: **DH␣XXXXX** *CR LF* (**XXXXX** = threshold value)

Possible responses:

DH␣OK *CR LF*	Command executed
ES *CR LF*	Command not accepted

16.3.15 Set value for “Upper Threshold“

Command: **UH␣XXXXX** *CR LF* (**XXXXX** = threshold value)

Possible responses:

UH␣OK *CR LF*	Command executed
ES *CR LF*	Command not accepted

16.3.16 Retrieve value for “Lower Threshold“

Command: **ODH** *CR LF*

Possible responses:

DH␣MASA *CR LF*	Command executed

1	2	3	4-12	13	14-16	17	18	19
D	H	␣	Weight	␣	Unit	␣	CR	LF

Weight - 9 characters with right-justified alignment
Unit - 3 characters with left-justified alignment

16.3.17 Retrieve value for “Upper Threshold“

Command: **OUH** *CR LF*

Possible responses:

UH␣MASA *CR LF*	Command executed

1	2	3	4-12	13	14-16	17	18	19
D	H	␣	Weight	␣	Unit	␣	CR	LF

Weight - 9 characters with right-justified alignment
Unit - 3 characters with left-justified alignment

16.3.18 Press simulation “PRINT key“

Command: **SS** *CR LF*

Using the command **S S CR LF** will save the weighing activity automatically to the database and a printout will follow provided an optional printer is connected.

16.3.19 Send all implemented messages

Command: PC CR LF

Answer:

PC A
"Z,T,S,SI,SU,SUI,C1,C0,CU1,CU0,DH,ODH,UH,OUH,OT,UT,SIA,SS, PC"

16.4 Data format

1	2	3	4-12	13	14-16	17	18
stability	␣	Signs	Measuring Value	␣	Unit	CR	LF

Stability symbol	[␣] stable
	[?] instable
	[^] overload
	[v] underload
Signs	[␣] positive values
	[**-**] negative values
Measuring Value	9 characters with right-justified alignment
Unit	3 characters with left-justified alignment

Example (stable / positive weighing value):

␣␣␣␣␣1 8 3 2 . 0␣g␣␣*CR LF*

17 Servicing, maintenance, disposal

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

17.1 Cleaning

Do not use aggressive detergents (solvents or similar). 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.

17.2 Servicing, maintenance

- ⇨ The appliance may only be opened by trained service technicians who are authorized by KERN.
- ⇨ Ensure that the balance is regularly calibrated, see chap. Monitoring of test resources.

17.3 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.

18 Troubleshooting guide / 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 be restarted from the beginning.

Fault	Possible cause
The displayed weight does not glow.	• The display unit is not switched on. • Mains power supply interrupted (mains cable defective). • 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. • 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.
The menu setting cannot be changed.	• Menu item is locked for models with type approval certificate.

Error messages:

Err2	Value outside zero setting range
Err3	Value outside tare range
Err8	Taring or resetting to zero when time is exceeded during procedure
Er4 FuL2	Weighing range exceeded
NULL	Error AD transformer
FULL	Weighing range exceeded
HI	Display range exceeded
LH	Initial weight error

19 Appendix A – Variables for printouts

19.1 List of variables

Symbol	Description
{0} [1)]	Default printout in adjusting unit
{1} [1)]	Default printout in current unit
{2}	Date
{3}	Time
{5}	Mathematical recipes
{4}	Date and time
{6}	Net weight in current unit
{7}	Net weight in adjusting unit
{8}	Gross weight
{9}	Tare
{10}	Current unit
{11}	Adjusting unit
{12}	Min threshold
{13}	Max threshold
{14}	Serial number
{15}	Statistics: Number
{16}	Statistics: Sum
{17}	Statistics: Mean Value
{18}	Statistics: Min
{19}	Statistics: Max
{20}	Statistics ZZ: Number
{21}	Statistics ZZ: Sum
{22}	Statistics ZZ: Mean Value
{23}	Statistics ZZ: Min
{24}	Statistics ZZ: Max
{25}	Weight: [lb]
{26}	Result check
{27}	Value
{28}	Value Z
{29}	Value ZZ
{30}	Gross value

{31}	Number of platform
{32}	Manufacturer’s number
{33}	Weighing scale division
{34}	Range
{35}	Parts counting: Mass of reference weight
{36}	Deviations: Mass of reference weight
{37}	Statistics: Standard Deviation
{38}	Statistics ZZ: Standard Deviation
{39}	Universal variable
{40}	Text information
{41}	Batch number
{42}	Statistics: Counter for weighing activities
{43}	Weight of platform
{44}	Weighing scale type
{45}	Parts counting: Reference quantity
{46}	Statistics ZZ: Number of measurements
{47}	Statistics: Gross total
{48}	Statistics ZZ: Gross total
{50}	Product: Name
{51}	Product: Code
{52}	Product: EAN code
{53}	Product: Weight
{54}	Product: Tare
{55}	Product: Cost
{56}	Product: Min
{57}	Product: Max
{58}	Product: FPVO mode
{59}	Product: Number of expiration days
{60}	Product: VAT
{61}	Product: Date
{62}	Product: Expiration date
{63}	Product: Density
{64}	Product: ingredients
{65}	Product: Description
{66}	Product: Lower deviation
{67}	Product: Upper deviation
{68}	Product: Categorie
{75}	User: Name
{76}	User: Code

{77}	User: Authorisations
{80}	Packaging: Name
{81}	Packaging: Code
{82}	Packaging: Weight
{85}	Customer: Name
{86}	Customer: Code
{87}	Customer: Tax ID number
{88}	Customer: Address
{89}	Customer: Post code
{90}	Customer: Place
{91}	Customer: Discount
{100}	Weighing report: Measurements
{101}	Filter weighing log: Starting date
{102}	Filter weighing log: Completion date
{103}	Filter weighing log: Product
{104}	Filter weighing log: User
{105}	Filter weighing log: Customer
{106}	Filter weighing log: Packaging
{106}	Filter weighing log: Product
{107}	Filter weighing log: Min
{108}	Filter weighing log: Max
{110}	Filter weighing log: Party no.
{111}	Filter weighing log: Target storage place
{112}	Filter weighing log: Source storage place
{113}	Filter weighing log: Result check
{114}	Filter weighing log: Platform no.
{115}	Filter weighing log: Number of weighing procedures
{116}	Filter weighing log: Total of weighing activities
{117}	Filter weighing log: Value
{118}	Filter weighing log: Gross value
{119}	Filter weighing log: Mean Value
{120}	Filter weighing log: Min
{121}	Filter weighing log: Max
{122}	Filter weighing log: Vehicle
{130}	Source storage place: Name
{131}	Source storage place: Code
{132}	Source storage place: Description
{135}	Target storage place: Name
{136}	Target storage place: Code

{137}	Target storage place: Description
{140}	Net weight in adjusting unit: Sum
{141}	Ancillary display: WD
{142}	Ancillary display: WWG
{143}	Hex
{144}	Hex UTF-8
{145}	Part weight
{146}	Gross weight in current unit
{147}	Tare in current unit
{148}	Ancillary display: PUE7
{149}	IP-address
{155}	Density: Starting date
{156}	Density: Completion date
{157}	Density: Method
{158}	Density: Reference liquid
{159}	Density: Density of reference liquid
{160}	Density: Temperature
{161}	Density: = volume of sinker
{162}	Density
{163}	Density: Unit
{164}	Density: Sample number
{165}	Density: Weighing measurement 1
{166}	Density: Weighing measurement 2
{167}	Density: Weighing measurement 3
{168}	Density: Volume
{169}	Density: Mass of pycnometers
{170}	Density: Volume of pycnometers
{175}	Dosing process: Name
{176}	Dosing process: Code
{177}	Dosing process: Cycle number
{178}	Dosing process: Number of cycles
{180}	Dosing log: Starting date
{181}	Dosing log: Completion date
{182}	Dosing log: Result
{183}	Dosing log: Number of measurements
{184}	Dosing log: Sum
{185}	Dosing log: Measuring
{186}	Measurements: Nominal weight

{187}	Measurements: Difference
{190} [3)]	Comparator: Log number
{191} [3)]	Comparator: Starting date
{192} [3)]	Comparator: Completion date
{193} [3)]	Comparator: Order number
{194} [3)]	Comparator: Number of test weight
{195} [3)]	Comparator: Number of reference weight
{196} [3)]	Comparator: Measuring
{197} [3)]	Comparator: Average difference
{198} [3)]	Comparator: Standard Deviation
{199} [3)]	Comparator: Number of cycles
{200} [3)]	Comparator: Method
{205}	Adjustment history: Nominal weight
{206}	Adjustment history: Number of platform
{209}	Vehicle: User
{210}	Vehicle: Name
{211}	Vehicle: Code
{212}	Vehicle: Description
{213}	Vehicle: Starting date
{214}	Vehicle: Completion date
{215}	Vehicle: Weight of entrance ramp
{216}	Vehicle: Weight of exit ramp
{217}	Vehicle: Weight of load
{218}	Vehicle: Type of transaction
{219}	Vehicle: Status
{220}	Recipe: Name
{221}	Recipe: Code
{222}	Recipe: Cycle number
{223}	Recipe: Number of cycles
{224}	Recipe: Process status
{225}	Recipe: Process status in %
{226}	Recipe: Name of component
{227}	Recipe: Difference
{228}	Recipe: Dose
{229}	Recipe: Nominal weight
{230}	Recipe: Number of current ingredient
{231}	Recipe: Number of ingredients
{232}	Recipe: Number of current batch
{233}	Recipe: Number of batches

{234}	Recipe: Status
{235}	Recipe: Min
{236}	Recipe: Max
{237}	Recipe: Code of ingredient
{240}	Recipe log: Starting date
{241}	Recipe log: Completion date
{242}	Recipe log: Result
{243}	Recipe log: Number of measurements
{244}	Recipe: Total weight
{245}	Recipe log: Measuring
{246}	Measurements: Nominal weight
{247}	Measurements: Difference
{248}	Recipe log: Code of ingredient
{295}	Log average tare: Date
{296}	Log average tare: Result
{297}	Log average tare: Standard Deviation
{298}	Log average tare: 0.25T1
{299}	Log average tare: Number of measurements
{300}	Log average tare: Measuring
{301}	Log average tare: Log no.
{302}	Log average tare: Average tare
{303}	Log average tare: Note

19.2 Format variables

The user has the option to format randomly any number variables and text variables that can be displayed as an expression or information in the working area of the display.

Types of formatting:

- Left-justified alignment
- Right-justified alignment
- Number of characters in printout / display
- Number of decimal places for number variables
- Date / time format
- Display of number variables in the form of code EAN13
- Display of number variables and date in the form of code EAN128

Definition of format:
All format elements have the following pattern and comprise the following components:
{ variable number }
{ variable number**,**field width }
{ variable number**:**format character string}
{ variable number,field width **:**format character string}
Curly brackets ("{" and "}") are required.

Alignment component
The component *alignment* represents an integral number with sign, specifying the desired formatted field width. If the value for *alignment* is less than the length of the formatted character string, *alignment* will be ignored and the length of the formatted character string will be used as field width. Formatted data in the field is presented right-justified when the value for *alignment* is positive and left-justified when the value for *adjustment* is negative. If fill characters are required, use spaces. A comma is required when stating *alignment.*

Format character string component
The optional component *format character string* describes how the specified variable is issued in a formatted form. It may contain the following details:

Specify a default or user defined numeric format character string if the corresponding object is a numeric value. Specify a default or user defined format style sheet for date and time. Specify the corresponding string. The general format identifier ("G") will be used if no *format character string* has been specified. A colon is required when specifying the *format character string.*

Special characters for formatting:

Character	Description	Example
,	Delimiter for variables with left-justified alignment	**{7,10}** – Net weight with unit, field width 10 characters left-justified alignment
-	Delimiter for variables with right-justified alignment	**{7,-10}** – Net weight with unit, max 10 characters with right-justified alignment
:	Delimiter for time (hours, minutes, seconds) with corresponding formatting	**{7:0.000}** – Net weight with unit and three decimal places; **{3:hh:mm:ss}** – Current time in format: Hour : Minute : Second
.	First dot after a number is deemed to be the delimiter for the decimal place. All subsequent dots will be ignored.	**{55:0.00}** – Unit price for product always with two decimal places; **{17:0.0000}** – Mean value for measurements always with four decimal places
F	Fixed comma Integral numbers and decimal numbers with optional minus sign	**{7:F2}** – Net weight with unit always with two decimal places **{7,9:F2}** – Net weight with unit always with two decimal places providing a field width of 9 characters with right-justified alignment
V	Formatting weight value into barcode EAN13	**{7:V6.3}** – Net weight **Fehler! Verweisquelle konnte nicht gefunden werden.** as barcode EAN13 (code of 6 characters) with three decimal places
T	Formatting weight value as barcode EAN128	**{7:T6.3}** – Net weight as barcode EAN128 with three decimal places
/	Delimiter for date between days, months and years	**{2:yy/MM/dd}** – Current date in format: Year – Month – Day, whereby **yy** stands for the last two digits of the year
****	The character for “escape“ removes the formatting function of the next character. The character is deemed to be text.	**{2:yy\/MM\/dd}** – Current date in format: Year / Month / Day; **{2:yy\:MM\:dd}** – Current date in format: Year: Month: Day.

Examples:

CODE	Description
{7:V6.3}	Net weight as EAN 13 (code of 6 characters)
{7:V7.3}	Net weight as EAN 13 (code of 7 characters)
{27:V6.3}	Net value as EAN 13 (code of 6 characters)
{27:V7.3}	Net value as EAN 13 (code of 7 characters)
{7:T6.3}	Net weight in EAN code 13
{16:T6.3}	Net weight K in EAN code 128
{21:T6.3}	Net weight KK in EAN code 128
{25:T6.3}	Net weight (lb) in EAN code 128
{8:T6.3}	Gross weight Kin EAN code 128
{55:T6.2}	Product price in EAN Code 128
{2:yyMMdd}	Date in EAN code 128
{61:yyMMdd}	Product date in EAN code 128
{62:yyMMdd}	Expiration date of product in EAN code 128
{16:V6.3}	Net weight K in EAN code 13 (code of 6 characters)
{16:V7.3}	Net weight K in EAN code 13 (code of 7 characters)
{28:V6.3}	Net value K in EAN code 13 (code of 6 characters)
{16:V7.3}	Net value K in EAN code 13 (code of 7 characters)
{21:V6.3}	Net weight KK in EAN code 13 (code of 6 characters)
{21:V7.3}	Net weight KK in EAN code 13 (code of 7 characters)
{29:V6.3}	Net value KK in EAN code 13 (code of 6 characters)
{29:V7.3}	Net value KK in EAN code 13 (code of 7 characters)

19.2 Mathematic formula

The function for mathematic formulas with variable **<{5} Mathematic Formula>** makes it possible to carry out arbitrary calculations. The following mathematical basic operations are available:

- Addition (+)
- Subtraction (-)
- Multiplication (*)
- Division (/)

It is also possible to use existing variables for your calculation. This allows you to load the weight from the platform and to process it correctly.

Example:

{5: ([43:1] + [43:2]) / 2}

When using variable **<{43} Weight of Platform>** as described above, the weight will be loaded from the platform (:1 und :2). It is then divided by 2.
The brackets allow you to carry out the calculation in the correct order according to mathematical basic principles.

Note:
The variables of mathematical computer operations are stored between square brackets **[ ]**, that is, not as before between curly brackets **{ }**.

The user may apply advanced functions that enable him/her to modify data in an extended way. Advanced functions are presented as text characters and descriptions in brackets:

- round (numeric value, precision of rounding (number)) - rounding
- abs (numeric value) – absolute value
- sin (numeric value) - sinus
- cos (numeric value) - cosine
- tan (numeric value) - tangent
- sqrt (numeric value) – root
- pow (numeric value, basis of power (number)) - power
- log (numeric value) - logarithm
- log10 (Numeric value) – logarithm with base 10

There are additional functions that modify text values. These functions allow you to amend text during its issue:

- remove (“text“, starting point (number), number of characters for deleting (number)) – The rest of the text will be issued after this entry. The sentence or text from the defined starting point to the specified number of characters will be deleted.

Example: {5:remove("sample text“,8,4)} = example

- substring ("text value“, starting point (number), number of characters for copying (number)) – This function is used to extract only certain words from the overall text.

Example: {5:substring("sample text“,1,8)} = example

- tolower ("text value“) – Converts text in question to lower-case characters.

Example: {5:tolower("EXAMPLE“)} = example

- toupper ("text value“) – Converts text in question to upper-case characters.

Example: {5:toupper("example“)} = EXAMPLE

- replace ("text value“, old text, new text) – Resets text with changed letters or parts of the text from second or third parameter.

Example: {5:replace("2.000“, "0“, "1“)} = 2.111

Note:
Text values need to be presented in inverted commas " ".

IMPORTANT: Always write text details in inverted commas.
When using existing variables from the database please use square brackets [ ] .

Please see also example using variable 50 (product name) below:

Toupper([50]) = APPLE

20 Appendix B – list “Function Keys“

Symbol	Description
	ENTER
	Zeroing
	Taring
	Set tare
	Parameters
	Application specific settings
	Set limit values MIN and MAX for control weighing
	Statistics Z: Print and reset to zero
	Statistics Z: Printing
	Statistics Z: Zeroing
	Statistics ZZ: Print and reset to zero
	Statistics ZZ: Printing
	Statistics ZZ: Zeroing
	Edit serial number
	Edit charge number
	Start recipe
	Stop recipe
	Select user
	Select user by code
	Select user by code
	Select product
	Select product by name

English

	Select product by code
	Select packaging
	Select packaging by name
	Select packaging by code
	Select customer
	Select client by name
	Select client by code
	Select source storage space
	Select source storage space by name
	Select source storage space by code
	Select target storage space
	Select target storage space by name
	Select target storage space by code
	Select application
	Enter reference single weight as numeric value
	Determine reference single weight by weighing
	Parts counting: Assign reference weight
	Reference piece number 5
	Reference piece number 10
	Reference piece number 20
	Reference piece number 50
	Enter reference weight (100%) as numeric value
	Determine reference weight (100%) by weighing
	Failure

English

	Permit pouring
	Disable tare
	Retrieve tare
	Change unit
	Change platform
	Edit universal variable 1
	Edit universal variable 2
	Edit universal variable 3
	Edit universal variable 4
	Edit universal variable 5
	Edit universal variable 1
	Edit universal variable 2
	Edit universal variable 3
	Edit universal variable 4
	Edit universal variable 5
	Select dosing process
	Select dosing process by name
	Select dosing process by code
	Select recipe
	Select recipe by name
	Select recipe by code
	Component
	Determining density of liquids
	Density determination of solids

English

	Density determination with pycnometer
	Density determination for porous solids
	Edit quantity of labels
	Edit quantity of K labels
	Edit quantity of KK labels
	Change FPVO: Working area / diagram
	FPVO: Set check
	FPVO: Return to start screen
	FPVO: Information on check in progress
	Select identification process
	Select identification process by name
	Select identification process by code
	Select platform 1
	Select platform 2
	Select platform 3
	Select platform 4
	Print screen

English

21 Installation display unit / platform

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

To configure a weighing system you have to call up the service level in the menu. Here you can change all parameters. For this reason direct access to the service switch is locked.

For disabling access lock see chap. 21.4.

21.1 Technical data

	KET-TAM	KEN-TM
Supply voltage platform	5 V	
Max. signal voltage	19.5 mV	
Load cell resistance	min. 80 Ω	
	max. 1200 Ω	
Max number of platforms	2	4

21.2 Weighing system design

The display unit is suitable for connection to any analogue load cell in compliance with the required specifications.
The following data must be established before selecting a load 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.
- **Zeroing range**
- **Smallest desired display division**
- **Verifiable, if required**

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.

21.3 How to connect the platform

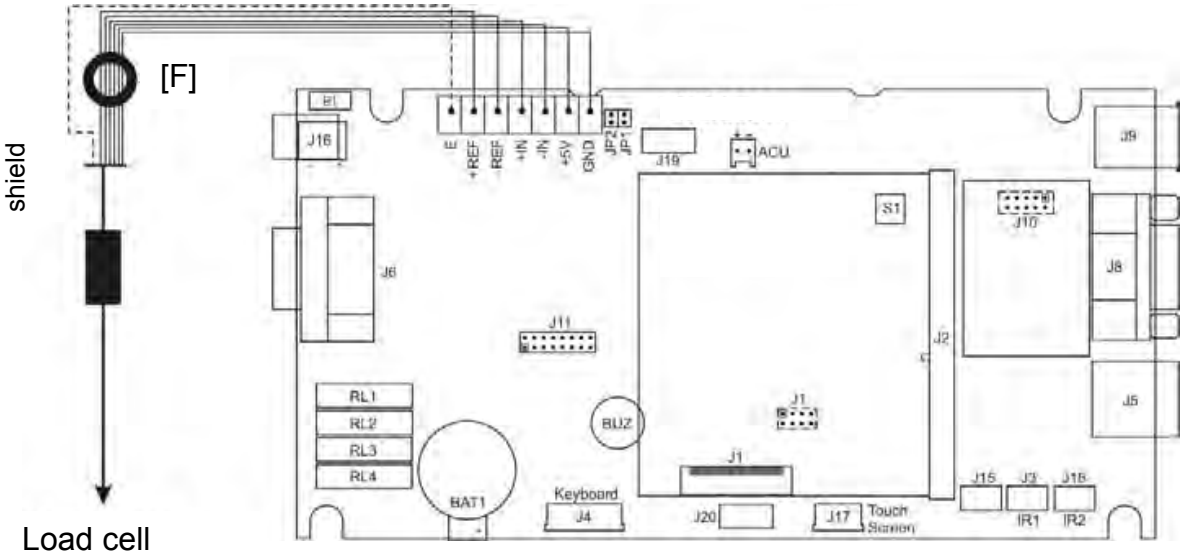
⇨ Disconnect the display unit from the power supply.

⇨ Open housing

⇨ To shield platform cable wind it around ferrite core [F].

⇨ Solder the individual leads of the load cell cable onto the circuit board, see diagrams below.

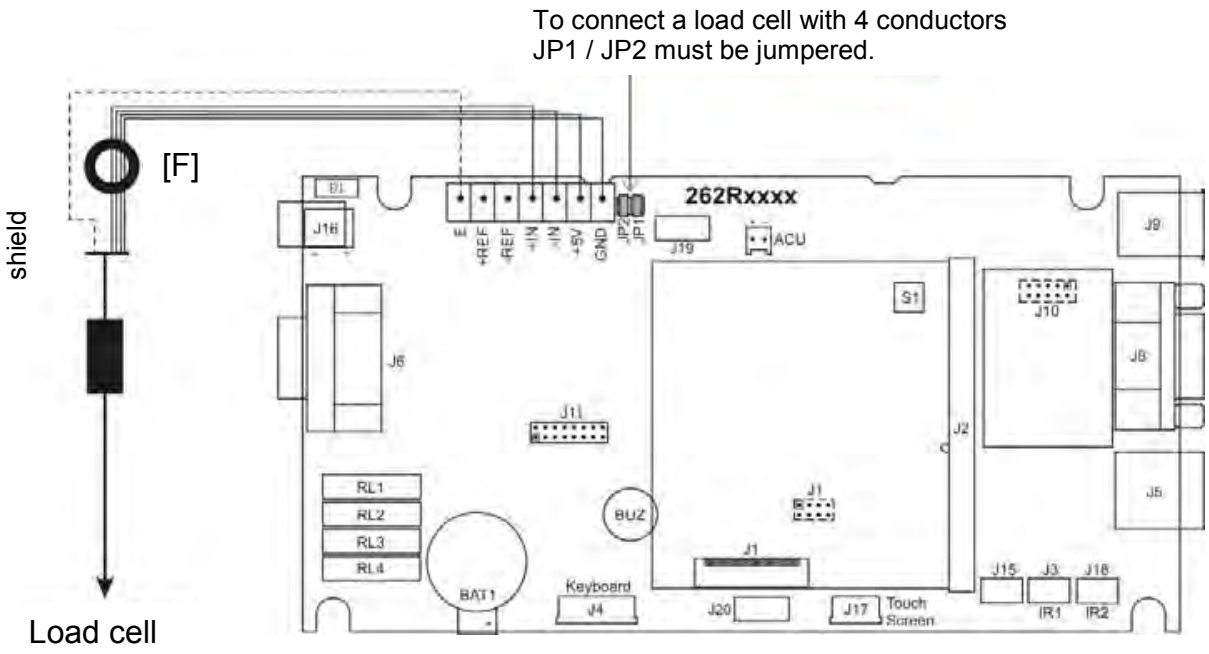
With 6 conductors:



Printed Circuit Board	Load cell	Remarks
E	SHIELD	
REF+	SENSE +	JP1 unjumpered
REF-	SENSE -	JP2 unjumpered
IN+	OUTPUT +	
IN-	OUTPUT -	
+5V	INPUT +	
GND	INPUT -	

English

With 4 conductors:



Printed Circuit Board	Load cell	Remarks
E	SHIELD	
REF+	-	JP1 jumpered
REF-	-	JP2 jumpered
IN+	OUTPUT +	
IN-	OUTPUT -	
+5V	INPUT +	
GND	INPUT -	

- ☞ For connection of individual wires please refer to the load cell's ID.
- ☞ The connection of several platforms requires the use of A/D transformer module KERN KET-A01 (optional).

21.4 Configure display unit

Before configuring a display unit make sure you know the required configuration data, see chap. 21.2. The weighing system is equipped with a service switch protected service level for entering configuration data.

Call up service level:

⇨ Switch on device with ON/OFF

⇨ To call up the service level you have to operate the service switch.
Use a suitable instrument for pushing the service switch
(such as thin screwdriver, Ø approx. 3 mm).

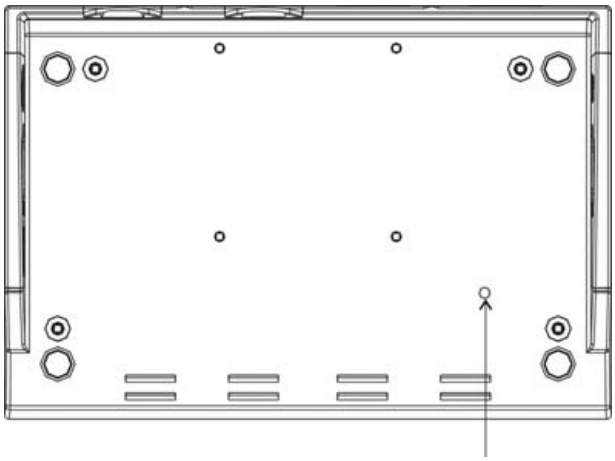


Fig.: Position service switch

Attention:

To operate the service switch of calibrated weighing systems you will first have to destroy the seal.

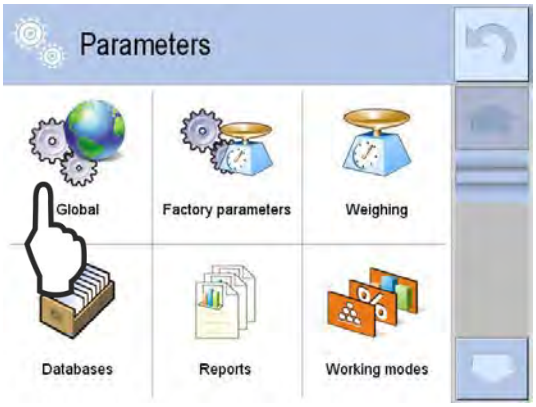
After destruction of the seal the weighing system must be re-verified by an authorised agency and a new verification wire/seal mark fitted before it can be reused for applications subject to verification.

⇨ Call up menu with MENU and the complete menu (See chap. 2.3.1) incl. service level will be displayed. The two service blocks of the service level are described below:

< **General >**

< **Manufacturer parameters >**

General parameters



Tap **< Global >**.

The menu will be displayed; see table below. 10.

To call up or change settings, tap the icons.

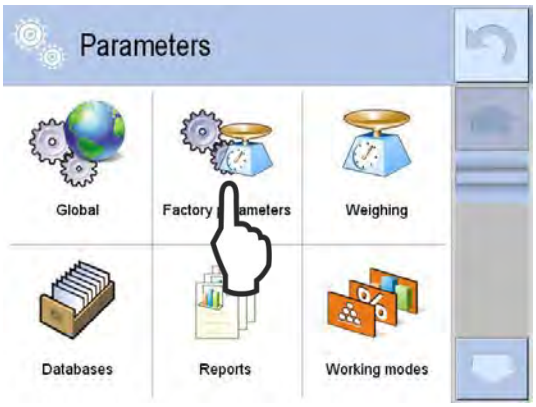
English

Tab. 10:

Number of platforms	Enter number of platforms
Weighing module type	Standard
	Weighing scale with NT command
	MW-01
	MW-04
Appropriate for verification	yes
	no
Speed of transformer	Retrieve value of A/D transformer. This value can be used to check whether the weighing cell is working correctly.
G-Cor	For G-Cor method see chap. **Fehler! Verweisquelle konnte nicht gefunden werden.**
	For latitude method see chap. **Fehler! Verweisquelle konnte nicht gefunden werden.**
factory number	View or change serial number
Synchronisation	
Storage deadline for weighing activities	Secure product database against deleting of data records (retention period in days)
Service	Service mode
Additional units	yes
	no
Mode of rounded tare	yes
	no
Tare locked	Lock tare
Configuration of database	Configure database data
Accessibility of working modes	Allocate applications
Import	Import data from external storage medium
Export	Export data to external storage medium
Folder for updates	Localization of updated files
Copy events file	-
Set default configuration	Reset to default settings
Standard Settings	Default settings
Use memory	Apply storage medium / USB storage medium

English

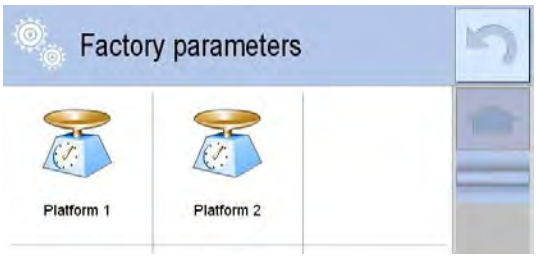
Manufacturer parameters



1. Tap **< Factory parameters>**.

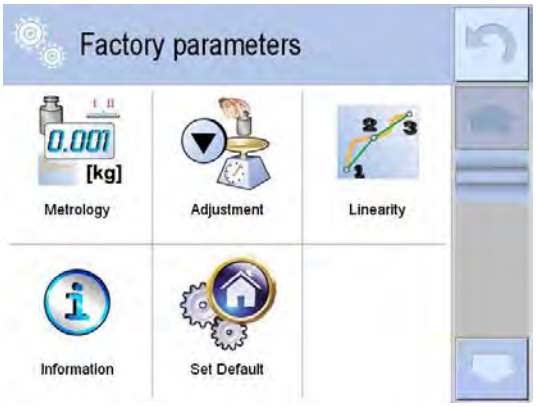
For configuring **one** platform, the submenu will be displayed directly, continue with step 3.

or



For configuring **several** platforms, first select the respective platform.

2. Tap the platform to be configured.



3. The submenu will be displayed.

English

21.4.1 Entering metrology / configuration data

⇨ Tap **< Metrology >** and the list of parameters for configuration will appear.

⇨ Tap the parameters one after the other on the list and select the desired setting, see list of parameters below.

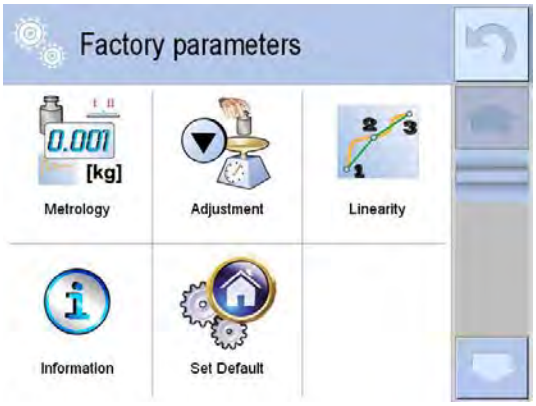
English

List of parameters “Configuration“ (Display example single range scale 6 kg):

Parameters	Default setting	Adjustable settings	Description
Readability 1	0.001	0.001, 0.002, 0.005, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50	Readability First weighing range
Readability 2	0.001	0.001, 0.002, 0.005, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50	Readability First weighing range
Readability 3	0.001	0.001, 0.002, 0.005, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50	Readability First weighing range
Weighing range max	6.009		Weighing range [Max + 9e]
Weighing range 2	0.000		Transition temperature First weighing range ⬇ 2. Weighing range For single range scale select setting “0“
Weighing range 3	0.000		Transition temperature First weighing range ⬇ 3. Weighing range For single and dual range scale select setting “0“
Adjustment weight	1.000		Weighing value “Adjustment weight“
Adjusting unit	kg	g, kg, lb	Weighing unit “ Admustment weight“
G-cor			Set correction value for geometric value
Auto zero range	0,25	0,1 -5	Autom. Zero tracking: Zero setting range in unit of readability
Stability range	5 d	0,1 -5	Rest position range in unit of readability
Stabilisation time		0 – 20	Time interval for stability control
Correction time			Not documented
Correction range			Not documented
Start of control mass		0 switched off 1 -5% to + 15 % 2 ±20 %	Start up zero setting range
Digit marker	✓	✓ no ✓ yes	Represent last decimal place in bracket, YES/NO

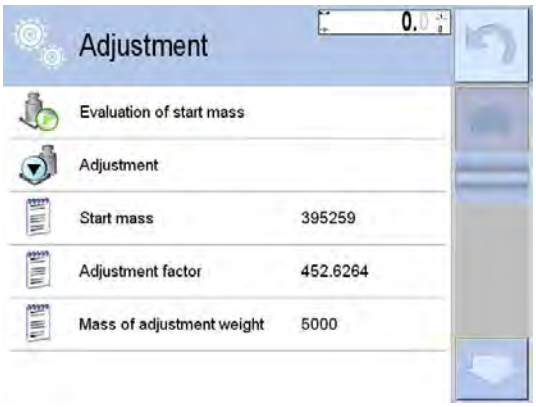
☞ After entering configuration data you have to carry out an adjustment or linearization.
For implementation see subsequent chapters 21.4.2 / 21.4.3.

21.4.2 Adjusting a weighing system



⇨ Tap **< Adjustment >**

The menu will be displayed

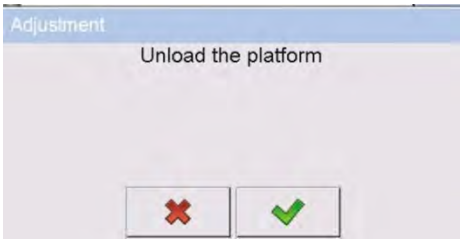


Determine initial mass	Adjust zero point
Calibration	How to carry out adjustments
Initial mass	A/D transformer at zero
Calibration factor	Adjusting co-efficient
Adjustment weight	For mass of required adjustment weight see list of parameters “Configuration”.

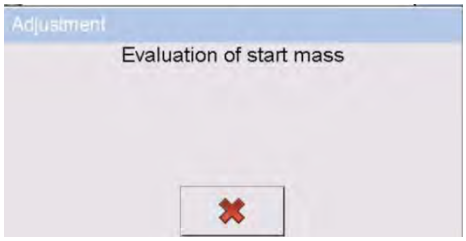
How to carry out adjustment:

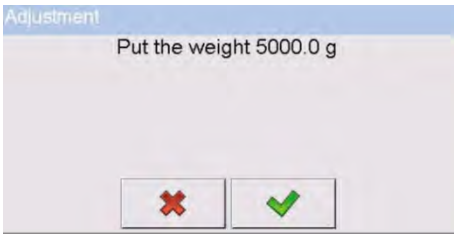
- Prepare the required adjustment weight. The weight to be used depends on the capacity of the scale. Carry out adjustment as near as possible to the scale’s maximum weight. Info about test weights can be found on the Internet at: http://www.kern-sohn.com.
- Observe stable environmental conditions. Stabilisation requires a certain warm-up time.
- When using several platforms follow the sequence of steps below for each platform.

⇨ Tap **< Adjustment >**



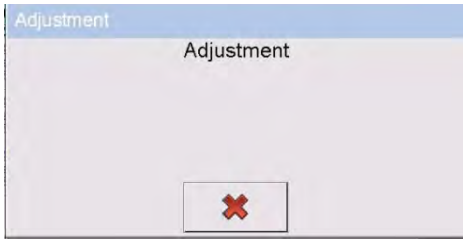
⇨ Ensure that there are no objects on the weighing plate.
Acknowledge with ✔.



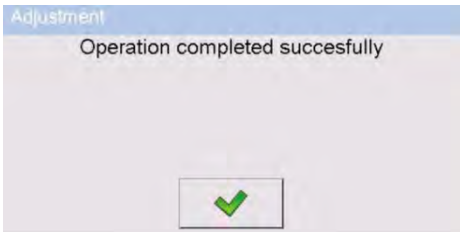


⇨ Wait until required adjustment weight is displayed.

⇨ Carefully place adjusting weight in the centre of the weighing plate.



⇨ Adjustment will start automatically.



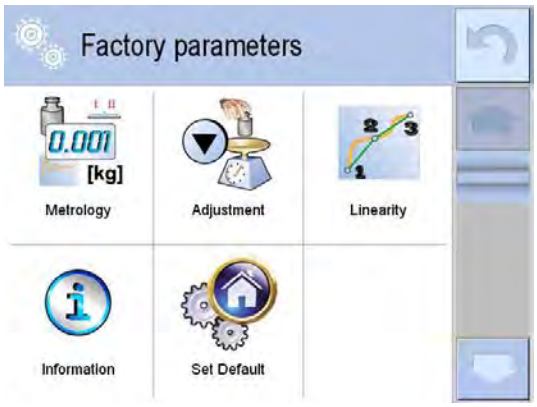
⇨ After successful adjustment, confirm the message “process completed successfully“ by pressing
The display will return to the menu.

English

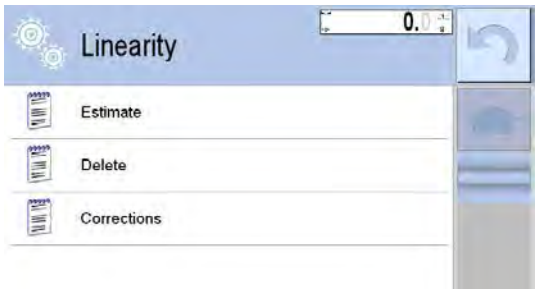
21.4.3 How to linearize a weighing system

Linearity shows the greatest deviation of a weight display on the scale to the value of the respective test weight according to plus and minus over the entire weighing range. If linearity deviation is discovered during a monitoring of test resources, you can improve this by means of linearization.

- In balances with a resolution of > 15 000 dividing steps carrying out a linearisation is recommended.
- Carrying out linearization is restricted to specialist staff possessing well acquainted with the workings of weighing scales.
- The test weights to be used must be compatible with the specifications of the weighing scale.
- Before starting linearization make sure that no objects have been left on the weighing platform and the indicators and are displayed.
- We recommend you calibrate the weighing scale after linearization.



⇨ Tap **< Linearity>**

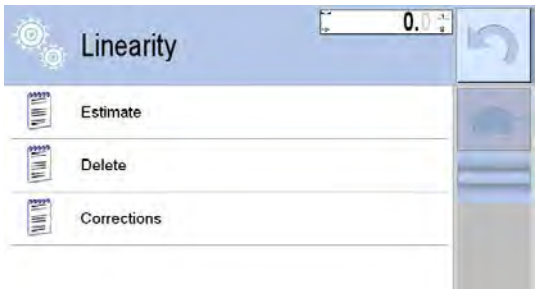


The menu will be displayed

Determination	Carry out a 6 point linearization
Delete	Delete all saved linearization points
correction	Correct linearization points numerically

Carry out 6 point linearization:

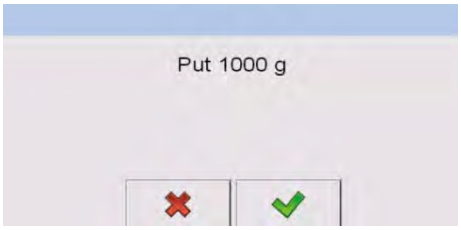
- Observe stable environmental conditions. Stabilisation requires a certain warm-up time.
- When using several platforms follow the sequence of steps below for each platform.



⇨ Tap **<Estimate>**.

Display example max 6 kg:

1. Enter weight value for first adjustment point (1/6 max) and confirm by ✔ .



2. Place the required adjusting weight carefully in the centre of the weighing plate and press ✔ to confirm.

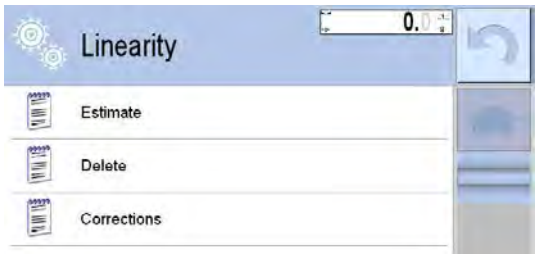
3. Enter weight value for first adjustment point (2/6 max) and confirm by ✔ .

4. Place the required adjusting weight carefully in the centre of the weighing plate and press ✔ to confirm.

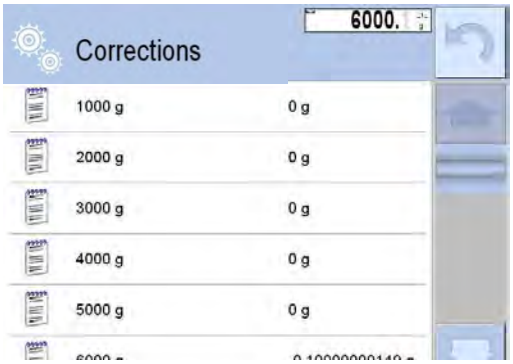
⇨ Repeat steps 1 and 2 for all six adjustment points.
After successful linearization of the sixth adjustment point the display will return automatically to the menu.

English

Correct linearization points:

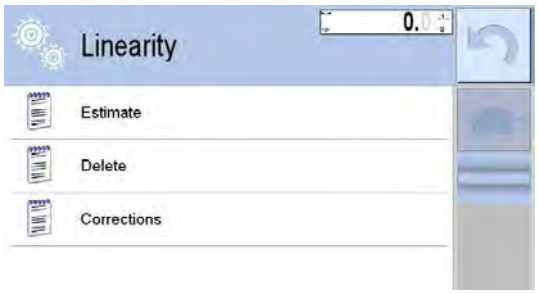


⇨ Tap **< Corrections >**

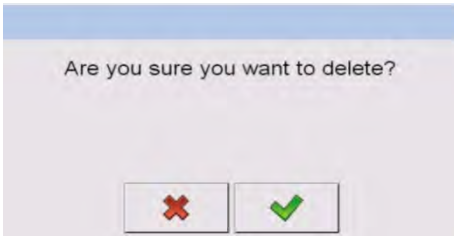


⇨ The linearization points including related deviations will be displayed and can be corrected numerically, as required.

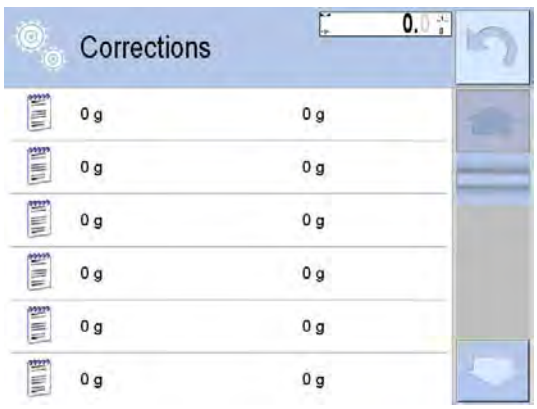
Delete linearization points:



⇨ Tap **< Delete >**



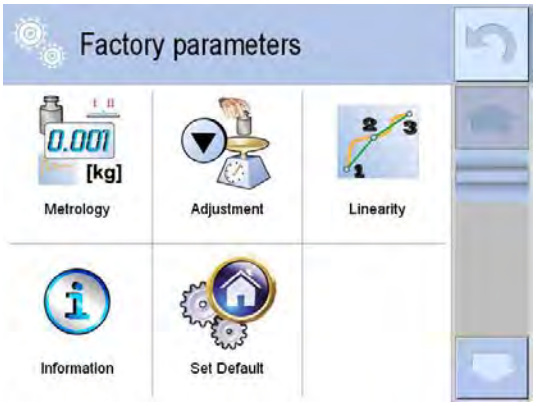
Confirm query with ✔.



All saved linearization points will be deleted.

English

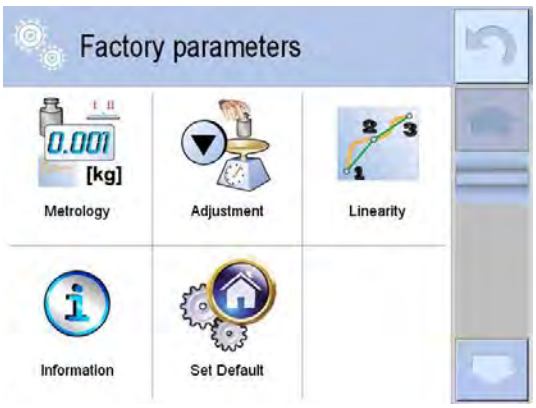
21.4.4 Display configuration data



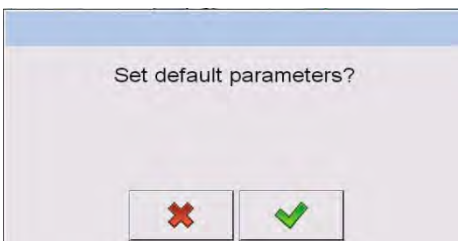
⇨ Tap **< Information >**.

⇨ The configuration data will be displayed

21.4.5 Reset to default settings



⇨ Tap **< Set Default >**

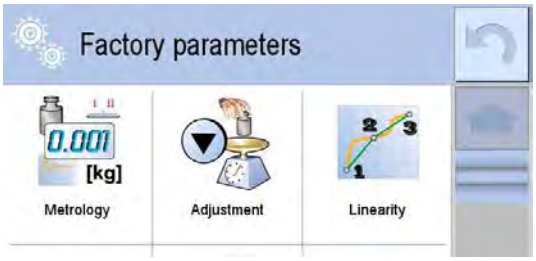


⇨ For resetting confirm query with ✔.

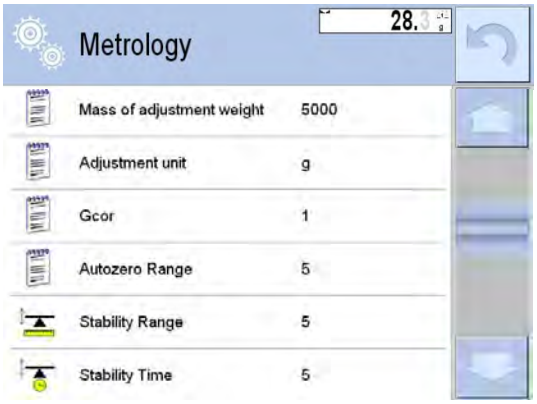
21.4.6 Geo value

The geographical value is used to adapt the weighing scale to local gravity conditions.

Set correction value for geometric value



⇨ Tap **< Metrology >**

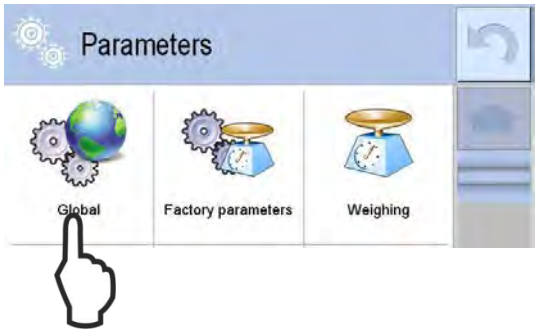


⇨ Tap **< G-Cor >**

⇨ Input correction factor and import with ✔

English

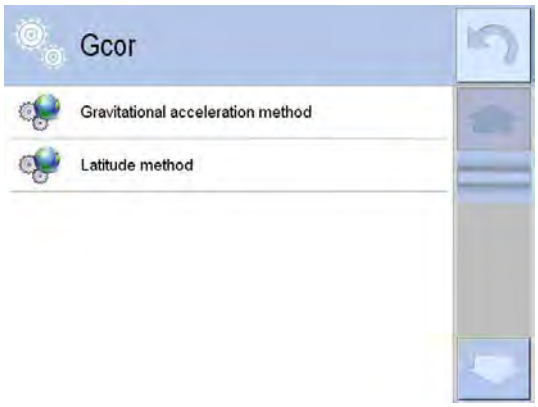
Set geo value for adjustment location and installation location.



⇨ Tap **< Global >**.

The menu will be displayed

⇨ Tap G-Cor

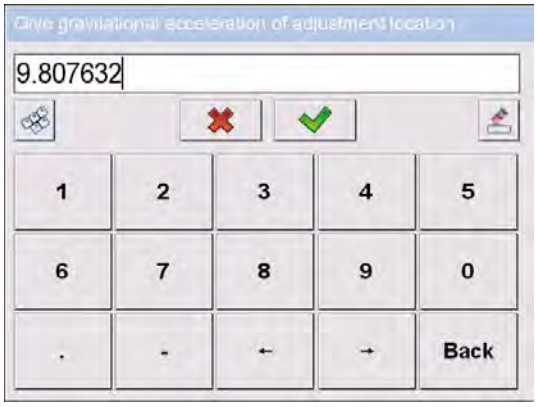


Select desired method

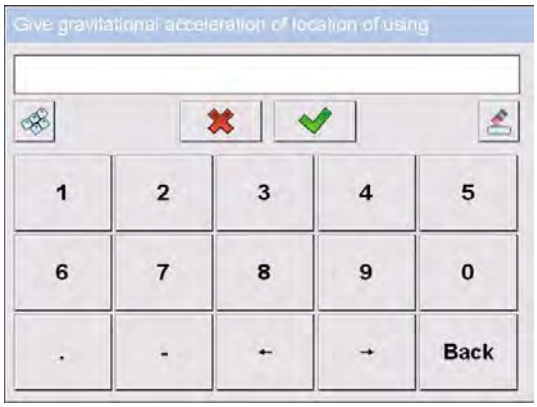
1. Gravitational acceleration method
2. Latitude method

English

1. Gravitational acceleration method



⇨ Enter geo value for adjustment location

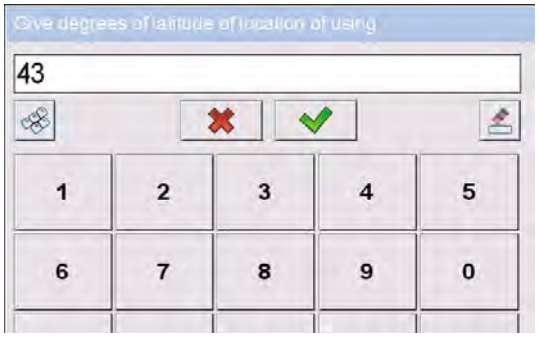


⇨ Enter geo value for installation location

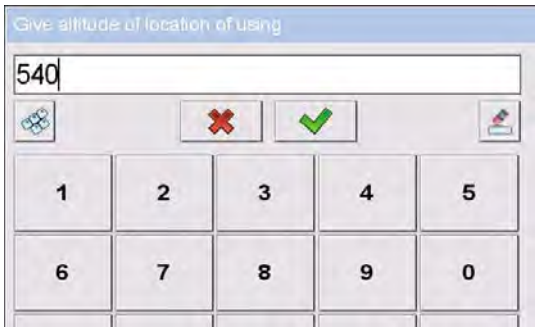
English

2. Latitude method

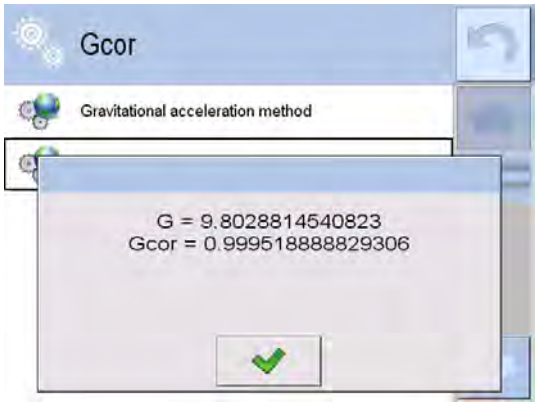
⇨ Enter gravitational acceleration for adjustment location.



⇨ Enter latitude for installation in degrees and minutes



⇨ Enter longitude for installation location



The weighing scale determines the geo value for the installation location and will display the result as well as a correction factor.

English

22 Conformity explanation/ test certificate

KERN & Sohn GmbH
D-72322 Balingen-Frommern
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Phone: 0049-[0]7433- 9933-0
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Internet: www.kern-sohn.de

Declaration of conformity

EC Declaration of Conformity
EC- Déclaration de conformité
EC-Dichiarazione di conformità
EC- Declaração de conformidade
EC-Deklaracja zgodności

EC-Declaration of -Conformity
EC-Declaración de Conformidad
EC-Conformiteitverklaring
EC- Prohlášení o shode
EC-Заявление о соответствии

D	Konformitäts-erklärung	Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.
EN	Declaration of conformity	We hereby declare that the product to which this declaration refers conforms to the following standards.
CZ	Prohlášení o shode	Tímto prohlašujeme, že výrobek, kterého se toto prohlášení týká, je v souladu s níže uvedenými normami.
E	Declaración de conformidad	Manifestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las normas siguientes
F	Déclaration de conformité	Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.
I	Dichiarazione di conformitá	Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.
NL	Conformiteit-verklaring	Wij verklaren hiermede dat het product, waarop deze verklaring betrekking heeft, met de hierna vermelde normen overeenstemt.
P	Declaração de conformidade	Declaramos por meio da presente que o produto no qual se refere esta declaração, corresponde às normas seguintes.
PL	Deklaracja zgodności	Niniejszym oświadczamy, że produkt, którego niniejsze oświadczenie dotyczy, jest zgodny z poniższymi normami.
RUS	Заявление о соответствии	Мы заявляем, что продукт, к которому относится данная декларация, соответствует перечисленным ниже нормам.

Electronic Balance: KERN KEN-TM, KET-TAM, ILT-BM, ILT-GM

EU Directive	Standards
2004/108/EC	EN 61326-1:2006
2006/95/EC	EN 61010-1:2010
2011/65/EU	EN 50581 :2012

Date 17.10.2015
Date

Ort der Ausstellung 72336 Balingen
Place of issue

Signatur
Signature

Albert Sauter
KERN & Sohn GmbH
Manager
Managing director