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Operating instructions

Baby balance

KERN MBA

Type TMBA-B

Version 2.1
2025-05
GB



TMBA_B-BA-e-2521

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KERN MBA

Version 2.1 2025-05

Operating instructions Baby balance

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1 Technical data

KERN	MBA 10K-3M
Type/Article number	TMBA 15K-3M-B
Weighing range (max)	15 kg
Minimum load (Min)	0.1 kg
Readability (d)	0.005 kg
Verification value (e)	0.005kg
Accuracy for first verification	till to 2.5 kg = 0.5 e >2.5 kg-10 kg = 1 e >10 kg – 15 kg = 1,5 e
Linearity	0.005 kg
Display	LCD with 25mm high digits
Recommended adjustment weight, not added (class)	15 kg (M1)
Stabilization time (typical)	3 sec.
Warm-up time	10 min
Operating temperature	10 C . + 40°C
Storage and transportation environment	-10 to +60°C, and 30% to 90% relative humidity Atmospheric pressure: 700-1060 hPa
Humidity of air	max. 80 % (not condensing)
Atmospheric pressure (kPa)	70kpa-106kpa
Input Voltage	100 V - 240 V, 50 / 60 Hz
Output voltage Power supply	12V/DC / 500mA/DC
Battery use	6 x 1.5 V AA
	Battery working range: without WiFi: 50 hours
Auto Off	after 30, 60, 180 sec. or Off without load change
Dimensions fully mounted (W x D x H) mm	890 x 470 x 175
Baby weighing pan (B x D) mm	600 x 260
Weight kg (net)	4.6
Verification in accordance with 2014/31/EU	Category III
Medical product as per (EU) 2017/745	Category I m (with measuring function)
Height measuring rod, assembled, optional	MBA-A01, Measuring range 30 – 80 cm
WIFI	WIFI interface (company option)

1.1 Tolerances optional body height measuring rod MBC-A01

Measured value (cm)	Tolerance (cm)
10 - 80	± 0.5

2 Declaration of conformity

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

www.kern-sohn.com/ce

i For verified weighing scales (= weighing scales assessed for conformity) the declaration of conformity is included in the scope of delivery.
Only these balances are medical products.

2.1 Explanation of the graphic symbols for medical products



All medical balances with this mark fulfill the following guidelines:

1. 2014/31/EU: Guideline for non-automatic balances
2. (EU) 2017/745 Medical products regulation



Unique product identification



Is a medical device

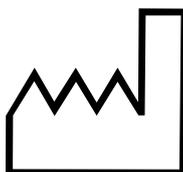


Balances which carry this mark, are conformity-evaluated as per accuracy class III of the EC-guideline 2014/31/EU. Accuracy of the balance see chapter 1 Technical data.

WF 202795

Designation of the serial number of every device, applied at the device and on the packaging

(Number as an example)



Identification of the manufacturing date of the medical product.

(Year and month here as example)

2022-06



“Attention, please note the accompanying document“,
or “Please note operating instructions”

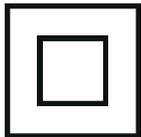


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Identification of manufacturer of medical product including
address



Electro-medical device with supplement for type B



Device protection class II



Dispose of old appliances separately from your household
waste!

Instead, take them to communal collection points.



Display of supply voltage for scales with polarity display



Sealing mark KERN SEAL



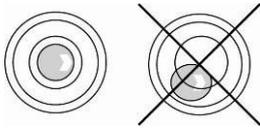
Supply voltage direct current



Information



To prevent babies lying on the weighing pan from falling off the scale, they must be watched all the time. Please observe note on weighing pan!



Level balance before use



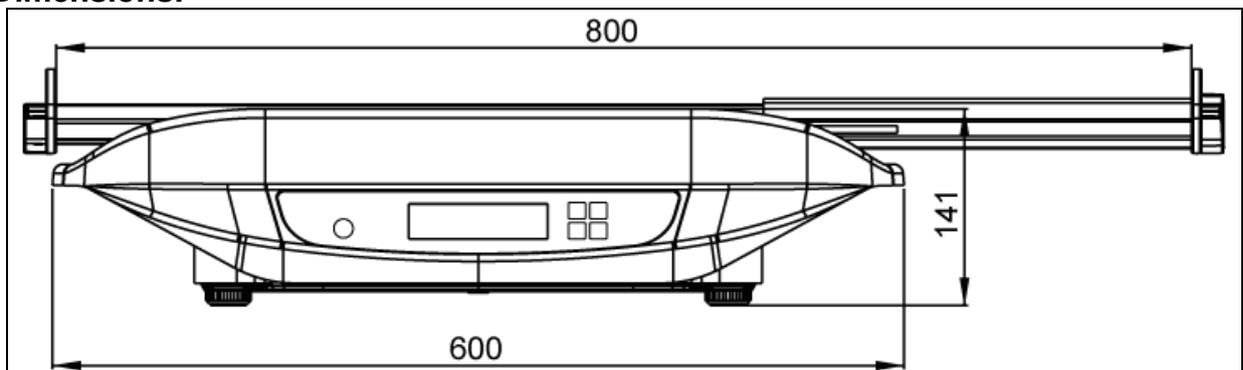
Electrostatically endangered structural components

3 Appliance overview

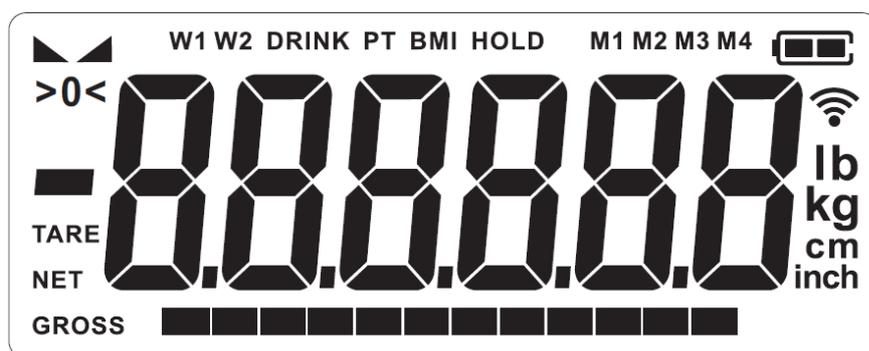


1. Height measuring rod (option)
2. Baby weighing pan
3. Keyboard
4. LED
5. Bubble level
6. Mains connection
7. Rubber feet (height adjustable)
8. Battery compartment / adjustment switch inside
9. WIFI compartment

Dimensions:



3.1 Overview of displays



Display	Designation	Description
GROSS	Gross weight display	Illuminated when gross weight of the baby is displayed
NET	Net weight display	Illuminated when net weight of the baby is displayed Illuminated after weighing scale was tared
TARE	Taring display	Illuminated after weighing scale was tared
→0←	Zeroing display	Should the balance not display exactly zero despite empty scale pan, press the  button. Your balance will be set to zero after a short standby time.
	Stability display	Scales are in a steady state
W1 – W2	Display weighing range	Illuminated, when the load is within the displayed range
HOLD	HOLD function	Is displayed with active Hold function Lights when the voltage drops below the prescribed minimum.
	Rechargeable battery symbol	Lights when the rechargeable battery capacity is almost exhausted. Illuminated when the rechargeable battery is fully charged.
	WiFi-symbol	Shows the status of the WiFi connection and the field strength of the WiFi network (models with WiFi module)

3.2 Keyboard overview



Button	Designation	Function
	ON/OFF-button	Turn on/off For numeric entry: <ul style="list-style-type: none"> Decimal point further to the right In menu: <ul style="list-style-type: none"> Confirm selection
	HOLD button	Hold function For numeric entry: <ul style="list-style-type: none"> Decimal point further to the left
	TARE button/ Zeroing key	<ul style="list-style-type: none"> Tare balance Weighing scale will be reset to „0.0“ kg. For numeric entry: <ul style="list-style-type: none"> Reduce numeric value In menu <ul style="list-style-type: none"> Call up menu Select menu items
	PRINT button	Printout the weighing value For numeric entry: <ul style="list-style-type: none"> Increase numerical value In menu <ul style="list-style-type: none"> Select menu items

4 Basic Information (General)

	Balances have to be verified for the purposes stated below in accordance with Directive 2014/31/EU. Article 1, paragraph 4. Determination of mass in the practice of medicine that is, weighing patients for reasons of medical supervision during medical surveillance, examination and treatment.
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4.1 Specific function

4.1.1 Indication

Medical scales:

Indication:

- These scales are used to determine the weight of people in medical treatment facilities. The scales are suitable for the detection, prevention, and monitoring of diseases.

Use:

- With baby scales, the baby must be placed carefully in the middle of the weighing tray.

After reaching a stable weighing value, the weighing value can be read.

The scale is designed for continuous operation.

Medical Height Rod:

Indication:

- Determination of body height in the medical field

Use:

- For the infant size height rods, the baby is carefully placed between the head and footrest, and the markers are pushed against the body.

4.1.2 Contraindication

No contraindication known.

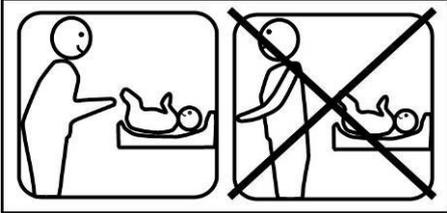
4.2 Proper use

These balances serve as a means of determining the weight of babies in medical treatment rooms. The scales are suitable for recognizing, preventing and controlling illnesses.

- The balance should be checked for correct condition prior to each utilization by a person familiar with proper operation of the balance.

The WIFI interface allows a wireless transfer of the measurement results to a PC.

	Scales fitted with a serial interface may only be connected to appliances in compliance with Directive EN 60601-1.
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	<p>To prevent babies lying on the weighing pan from falling off the scale, they must be watched all the time. Please observe note on weighing pan!</p> <div style="text-align: center;">  </div>
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	<p>If the balance doesn't have any contact with the transfer cable, do not touch the transfer port in order to avoid an ESD-failure.</p> <div style="text-align: center;">  </div>
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4.3 Non-intended product use / contraindications

	<ul style="list-style-type: none"> • Do not use these scales for dynamic weighing processes. • 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. This could cause damage to the balance. • Never operate the balance in explosive environment. The serial version is not explosion protected. It should be noted that a flammable mixture of anaesthetics and oxygen or laughing gas may occur. • The structure of the balance may not be modified. This may lead to incorrect weighing results, safety-related faults and destruction of the balance. • The balance may only be used according to the described conditions. Other areas of use must be released by KERN in writing. • If the balance is not used for a longer time, take out the batteries and store them separately. Leaking battery liquid could damage the balance. • The balance may only be used for weighing babies. Persons heavier than 15 kg may not step on the balance.
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	<p>Non-intended use of the optional body height measuring rod</p> <ul style="list-style-type: none"> • The body height measuring rod may only be assembled as specified in the operating instructions. • The structure of the body height measuring rod may not be modified. This may result in incorrect measuring results, safety-related defects as well as destruction. • The body height measuring rod may only be used according to the described conditions. Other areas of use must be released by KERN in writing. For more details please see the user manuals of the body height measuring rod.
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4.4 Warranty

Warranty claims shall be voided in case:

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

4.5 Monitoring of Test Resources

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

For balances with height measuring rods, we recommend a metrological examination of the accuracy of the body height measuring rod, however, this is not mandatory as the determination of human body height involves rather large, intrinsic inaccuracies.

4.6 Plausibility check

Please make sure that the measurement values computed by the appliance are plausible and are allocated to the respective patient, before storing and using the values for further purposes. This applies especially also for values transferred via interface.

4.7 Reporting serious incidents

All serious incidents appeared related to this product must be reported to the manufacturer and the responsible authority of the member state where the user and/or the patient are residents.

„Serious incident“ that means an incident which directly or indirectly had, could have or could have had one of the following consequences:

- the death of a patient, a user or another person,
- the temporary or permanent fatal deterioration of the health status of a patient, a user or other persons,
- a serious danger for public health.

5 Basic Safety Precautions

5.1 Pay attention to the instructions in the Operation Manual

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

The medical staff must apply and follow the operating instructions for proper use and care of the product.

The optional WIFI interface must be set up and integrated into a network only by experienced administrators or hospital technicians.

5.3 Preventing contamination

To prevent cross-contamination (fungal skin infections, ...), clean the baby weighing pan or weighing plate every time after weighing.

Recommendation: After any weighing procedure that could potentially result in contamination (e. g. after weighing that involves direct skin contact).

5.4 Preparation for use

- Check the baby balance for damage before any use
- Maintenance and reverification (in Germany MTK): The baby balance must be serviced and reverified at regular intervals
- Do not use the appliance on slippery surfaces or in facilities with risk of vibration
- During installation the baby balance must be levelled
- If possible, the product must remain in its original packaging for transportation purpose. Should this not be possible, make sure that the product is protected against damage

6 Electromagnetic compatibility (EMC)

6.1 General hints

The MBA-M is suitable for an environment of professional health institutes (hospital, clinics.....).

	The installation and use of this electrical medical device requires special precautionary measures as outlined in the EMC information below.
	Do not install the appliance near active surgical high-frequency devices and in radio-frequency-screened rooms of a ME system for magnetic resonance reproduction where high intensity of electro-magnetic interferences occurs.
	Please avoid to operate the appliance beside or stacked on other devices, as this may cause incorrect measuring results. If such use should be required, this appliance and the other devices should be observed, in order to ensure that they work normally.
	Using accessories, transformers and other cables than the specified ones or delivered by the manufacturer together with the appliance, could have as consequence reinforced electromagnetic radiation or reduced electromagnetic immunity to interference and by that way reduced functionality.
	Portable radio-frequency communication device (including periphery as well as antenna cable and external antennae) should be placed from any part of the MBA-M including the cables authorized by manufacturer at a distance of at least 30 cm (12 inches). Otherwise the performance of the appliance could drop down.

Note: The emission characteristics of this appliance allow its use in industrial areas and in hospitals (CISPR 11 category A). If it is used in residential areas (where CISPR 11 category B normal is required), this appliance cannot ensure sufficient protection against radio-frequency-communication services. In order to obtain reasonable results, the user should apply measures for weakening the intensity, e.g. install the device in another site or re-align it.

Electromagnetic compatibility (EMC) describes a device's ability to perform reliably within an electromagnetic environment without causing there inadmissible electromagnetic interference at the same time. Amongst other things, such disturbances may be transmitted by connecting cables or by the air.

Inadmissible interferences from the environment may result in wrong displays, inaccurate measured values or incorrect behavior of the medical device. The performance regulation is less than $\pm 1\text{kg}$ instable reading when measuring with evaluated weight capacity.

Also in certain cases the baby balance MBA-M may cause such failures in other devices. To eliminate problems of that kind, we recommend you to take one or several of the measures listed below:

- Change the alignment or distance of the device to the source of EMI.
- Install or use the baby balance MBA-M on another place.
- Connect the baby balance MBA-M to another power source.
- For further questions please contact our customer services.

Disturbances may be caused by improper modification or add-ons to the device or not recommended accessories (such as power supply units or connecting cables). The manufacturer will not be responsible for these. Modifications may also result in a loss of authorisation relating to the use of the device.

Devices emitting high frequency signals (mobile telephones, radio transmitters, radio receivers) may cause interference in the medical device. For that reason do not use them near the medical device. Chapter 6.4 contains details about recommended minimum distances.

6.2 Electromagnetic interferences

All required instructions to preserve the BASIC SAFETY and REQUIRED PERFORMANCE considering the electromagnetic interferences for the expected service life. (description according to the manufacturer's product)

Guidelines and manufacturer's declaration - electromagnetic interference immunity

The tables below refer to the product operated by mains current

Guidelines and manufacturer's declaration - Electromagnetic emissions	
The baby balance MBA-M is intended to be operated in an electromagnetic environment as defined below. The customer or user of the baby balance MBA-M should ensure that operation takes place in such an environment.	
Emission check	Fulfillment
Radio-frequency emissions CISPR 11	Group 1
Radio-frequency emissions CISPR 11	Category [A]
Harmonic emissions IEC 61000-3-2	Category A
Voltage fluctuations/Flickering IEC 61000-3-3	Keeping

Do not use the baby balance MBA-M directly next to other devices or stacked with other devices. If this type of operation cannot be avoided, observe the baby balance MBA-M to ensure normal operation in such an arrangement.

6.2.1 Drop in performance

	Powerful fields with electromagnetic interferences which e.g. are arising from electric motors or inductive charging units, may cause drop down of performance if they are located near the baby balance MBA-M. Drop down of performance may cause instably displayed weighing values.
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6.3 Electromagnetic interference immunity

Guidelines and manufacturer's declaration - electromagnetic interference immunity		
The baby balance MBA-M is intended to be operated in an electromagnetic environment as defined below. The customer or user of the baby balance MBA-M should ensure that operation takes place in such an environment.		
Immunity to interference tests	IEC 60601-1-2 Test level	Fulfillment level
Electrostatic discharge (ESD) IEC 61000-4-2	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15kV air	± 8 kV contact ±2 kV, ± 4 kV, ±8kV, ±15kV air
Electrical quick compensation / Burst IEC 61000-4-4	± 2 kV for power lines ± 1 kV Signal input/output 100kHz repetition frequency	± 2 kV for power lines Not appeared 100kHz repetition frequency
Excess voltage IEC 61000-4-5	±0.5 kV, ±1 kV differential mode ±0.5 kV, ±1 kV, ±2 kV General mode	±0.5 kV, ±1 kV differential mode Not applicable
Voltage low points, short interruption and voltage fluctuations in the power supply cables IEC 61000-4-11	0 % UT; 0.5 cycle. At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°. 0 % UT; 1 cycle and 70 % UT; 25/30 cycles; single phase: at 0°. 0 % UT; 250/300 cycle	0 % UT; 0.5 cycle. At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°. 0 % UT; 1 cycle and 70 % UT; 25/30 cycles; single phase: at 0°. 0 % UT; 250/300 cycle

Power frequency magnetic field IEC 61000-4-8	30 A/m 50Hz / 60Hz	30 A/m 50Hz / 60Hz
Guided radio frequency IEC61000-4-6	3 V 0.15 MHz – 80 MHz 6 V in ISM strip between 0.15 MHz and 80 MHz 80 % AM at 1 kHz	3 V 0.15 MHz – 80 MHz 6 V in ISM strip between 0.15 MHz and 80 MHz 80 % AM at 1 kHz
Radiated radio-frequency IEC61000-4-3	10 V/m 80 MHz – 2.7 GHz 80 % AM at 1 kHz	10 V/m 80 MHz – 2.7 GHz 80 % AM at 1 kHz 
NOTE	U_T equals AC line voltage prior to application of test level.	

Guideline and manufacturer's declaration - electromagnetic immunity to interference

	Test frequency (MHz)	Strip (MHz)	Service	Modulation	Modulation (W)	Distance (m)	IMMUNITY TO INTERFERENCE TEST LEVEL (V/m)
Radiated radio-frequency IEC61000-4-3 (test specifications for ANNEX PORT-IMMUNITY TO INTERFERENCE on radio-frequency wireless communication equipment)	385	380 – 390	TETRA 400	Impulse Modulation 18 Hz	1.8	0.3	27
	450	430 – 470	GMRS 460, FRS 460	FM ± 5 kHz deviation 1 kHz sine	2	0.3	28
	710	704 – 787	LTE strip 13, 17	Impulse Modulation 217 Hz	0.2	0.3	9
	745						
	780						
	810	800 – 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE strip 5	Impulse Modulation 18 Hz	2	0.3	28
	870						
	930						
	1720	1 700 – 1 990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE strip 1, 3, 4, 25; UMTS	Impulse Modulation 217 Hz	2	0.3	28
	1845						
	1970						
	2450	2 400 – 2 570	Bluetooth WLAN 802.11 b/g/n, RFID 2450, LTE strip 7	Impulse Modulation 217 Hz	2	0.3	28
	5240	5 100 – 5 800	WLAN 802.11 a/n	Impulse Modulation 217 Hz	0.2	0.3	9
	5500						
	5785						

^a The field intensity of stationary radio transmitters such as base stations of wireless telephones and mobile radio sets, amateur radio stations, AM and FM radio and television stations cannot be reliably predicted in advance. To determine the electromagnetic environment in respect of stationary transmitters, you should consider a study of electromagnetic phenomena at the location. If the measured field strength of the location where the baby balance MBA-M is operated, is exceeding the above mentioned conformity level, the baby balance MBA-M should be observed in order to ensure the intended function. If you observe unusual features of performance you may have to take additional measures such as a change in alignment or a different location for the medical device.

Note: The EMISSION characteristics of this appliance allow its use in industrial areas and in hospitals (CISPR 11 category A). If it is used in residential areas (where CISPR 11 category B normal is required), this appliance cannot ensure sufficient protection against radio-frequency-communication services. In order to obtain reasonable results, the user should apply measures for weakening the intensity, e.g. install the device in another site or re-align it.

6.3.1 Crucial features of performance



The baby balance MBA-M does not have any crucial features of performance as per IEC 60601-1. The system may be subject to interference by other devices even if these devices conform to current emission requirements as per CISPR.

6.4 Minimum distances

Recommended safety distances between portable and mobile HF telecommunication devices and the medical device

The baby balance MBA-M is designed for use in an electromagnetic environment in which high-frequency disturbance variables are controlled. The customer or user of the baby balance MBA-M can help avoiding electromagnetic disturbances by keeping the minimum distance between portable and mobile high-frequency telecommunication devices (transmitters) and the medical device – depending on the output performance of the communication device, as stated below.

Rated capacity of transmitter W	The safety distance depends on the transmission frequency %m		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.20	1.20	2.30
10	3.80	3.80	7.30
100	12.00	12.00	23.00

For transmitters with a maximum rated capacity not stated in the table above you can calculate the recommended safety distance d in meters (m) yourself by using the equation belonging to each column, whereby P equals the maximum rated capacity of the transmitter in Watt (W) as per details provided by the transmitter manufacturer.

NOTE 1 Higher frequency range applies to 80 MHz and 800 MHz.

NOTE 2 These guidelines may not be applicable in all cases.
The spreading of electromagnetic variables is influenced by absorption and reflections from buildings, objects and persons.

7 Transport and storage

7.1 Testing upon acceptance

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

7.2 Packaging / return transport



- ⇒ Keep all parts of the original packaging for a possibly required return.
- ⇒ Only use original packaging for returning.
- ⇒ Prior to dispatch disconnect all cables and remove loose/mobile parts.
- ⇒ Reattach possibly supplied transport securing devices.
- ⇒ Secure all parts such as the weighing pan, power unit etc. against shifting and damage.

8 Unpacking, Setup and Commissioning

8.1 Installation Site, Location of Use

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

On the installation site observe the following:

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

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. In that case, the location must be changed.

8.2 Unpacking

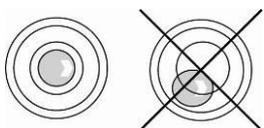
Take the balance out of its packaging and place it at the intended position. When using the power supply unit, ensure that the power cable does not produce a risk of stumbling.

8.3 Scope of delivery

- Balance
- Batteries 6x1.5 V AA
- Operating instructions

8.4 Placing

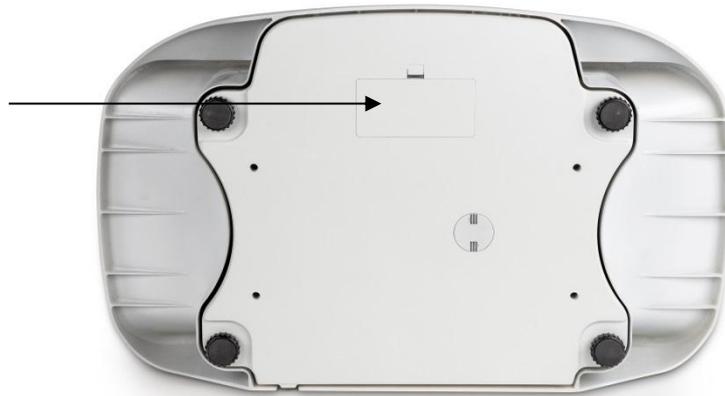
Carefully remove the balance from the packaging, remove plastic cover and setup balance at the intended workstation.



⇒ Level balance with foot screws until the air bubble of the water balance is in the prescribed circle.

⇒ Check levelling regularly

8.5 Battery operation



The balance offers also the possibility to be operated with 6x AA-batteries. Open the battery cover (see fig.) at the lower side of the display unit and insert the batteries according to the example shown below. Lock again the battery compartment cover. If the batteries are empty, in the balance display appears the symbol . Change batteries. To save the battery, the balance switches automatically off (see chap. 9.4 Auto off).



If the batteries are empty, switch them off using button  and replace the batteries immediately.

If the balance is not used for a longer time, take out the batteries and store them separately. Leaking battery liquid could damage the balance.



Capacity of batteries exhausted.



Capacity of batteries will soon be exhausted.



Batteries completely charged



- If the balance is not used for a longer time, take out the batteries and store them separately. Leaking battery liquid could damage the balance.
- When the optional WIFI-interface is used, power consumption increases

Insert batteries:

Remove the battery compartment lid on the lower side of the balance



Connect the battery block with batteries to the contact of the housing and insert into the battery compartment. Fix it using the battery compartment lid.



8.6 Mains connection (option)

Power is supplied by the external mains adapter which also serves to isolate the mains supply from the scale. The stated voltage value must be the same as the local voltage.

Only approved genuine KERN mains adapters may be used in compliance with Directive EN 60601-1.



When the optional WIFI-interface is used, power consumption increases

8.7 Optional equipment mains adapters

Available mains adapters (optional)

- YKA-43
- YKA-44

8.8 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 balance must be connected to the power supply (mains, accumulator or battery) and be switched on.

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

The value of gravity acceleration is shown on the type plate.

9 Operation

9.1 Weighing

 Start balance by pressing . The balance will carry out a self-test. The balance is ready for operation as soon as the weight display for "0.000 kg" has appeared.

 However, you can reset the weighing scale to zero by pressing the  key.

Put baby in the center of the weighing pan.
Wait for the stability display , then read the weighing result.

 If the baby is heavier than the max. weighing range, the display shows "oL" (overload) and a beep sounds.

9.2 Taring

The tare weight of any preloads can be deducted by pressing a button so that the actual weight of the baby is displayed in subsequent weighings.

 Put object (such as towel or padding) on the weighing pan.
Wait for stability display .

(example)

 Press , the zero display appears.

 Put baby on the weighing pan.
Wait until the stability display  appears, then read the weighing result. „NET” is shown at the bottom on the left.

(example)

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

To delete the stored tare value, unload the balance and press .

9.3 Hold function (Standstill function)

The balance has an integrated standstill function (mean value calculation). This allows one to weigh the baby exactly, even if it is not restful on the weighing pan.



Start balance by pressing



Await zero display



Place the baby, press , in the display „-----“ will shortly appear and the „**HOLD**“ symbol appears flashing. During this time the weight is calculated.



(example)

After that the weight of the baby is displayed and "frozen". The „**HOLD**“ symbol is not more flashing.

After unloading the balance, the weighing value is kept for 10 sec. in the display, the „**HOLD**“ symbol flashes again during this time. Then the balance returns automatically into the weighing mode. The „**HOLD**“ symbol disappears.



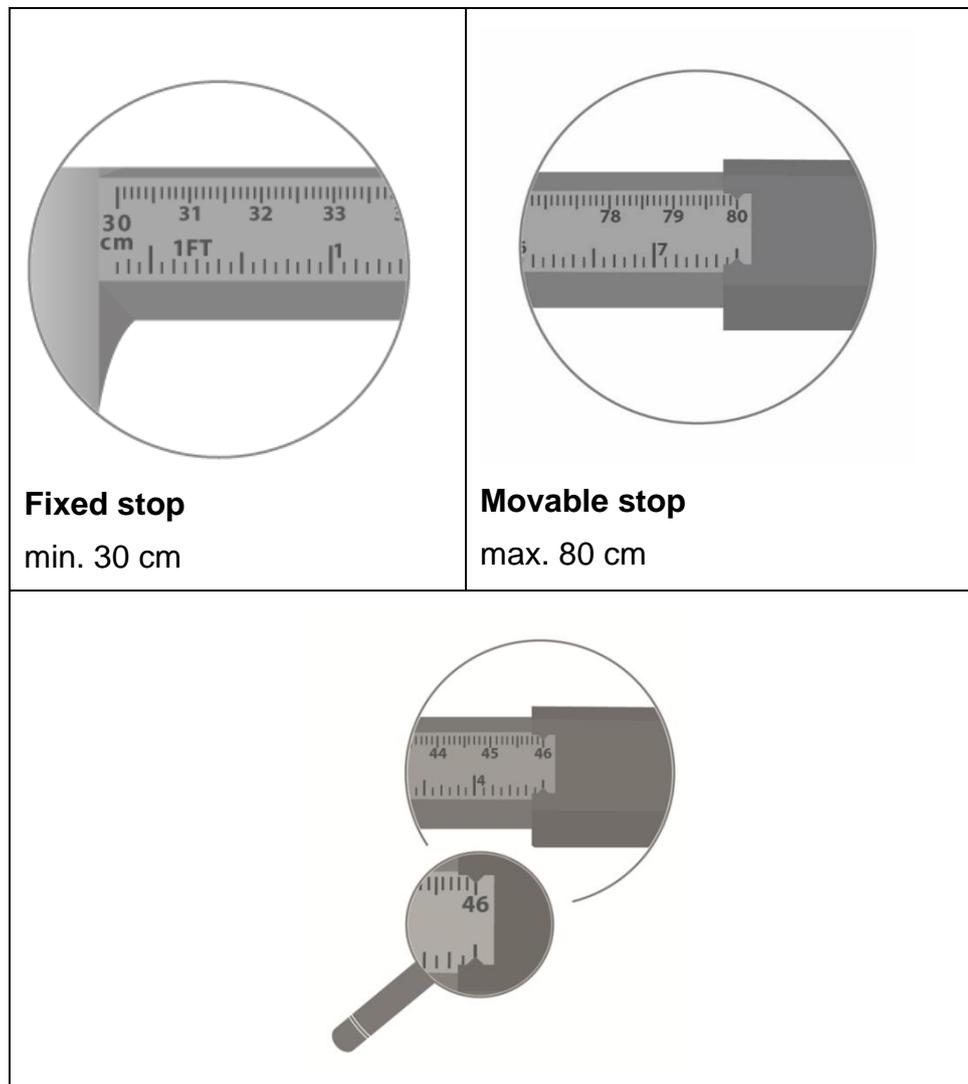
9.4 Auto off (Automatic switch-off function)

The balance offers the possibility of an automatic switch-off. It can be adjusted: Selectable between 30, 60, 180 sec.. and off.

	<p>Switch-on balance, in weighing mode press  approx. 3 seconds, AF will be displayed.</p>
	<p>Press , the switch-off time set as last will be displayed, e.g. "30"</p>
	<p>Press  or  to set the desired switch-off time, e.g. "180" sec.</p>
	<p>Acknowledge with . The balance changes into the weighing mode, the set switch-off time now is saved.</p>

9.5 Using the optional body height measuring rod MBA-A01

The balance has the ability to determine not only the weight but also the body height using the optional body height measuring rod.



For this purpose proceed as follows:

- ⇒ Position the baby in a way that the head touches gently the fixed stop.
- ⇒ Push the movable stopper carefully till to the heel stopper.
- ⇒ Read the body height.



A correctly exercised height measurement will achieve an accuracy of up to 5 mm.



For further information (for example, assembly), refer to the instruction manual added to the height measuring rod.

9.6 Using the optional equipment-WIFI-interface YMI-A01 (TMBA-A02-A)

- ⇒ W-LAN standard: IEEE 802.11 b/g/n (Wi-Fi)
- ⇒ Network log: TCP/IP with DHCP
- ⇒ Supported encryption methods: WPA, WPA2
- ⇒ Application log: KCP (KERN Communications Protocol):

Set up WIFI connections:

1. The balance creates a WIFI access point as soon as it has started up (WLAN symbol in the balance display appears).
Use your computer to connect to this access point.
The SSID (name of the balance's access point) is „AI_THINKER_xxxxxx“
2. Using a web browser visit the website <http://192.168.4.1/> .
In the website:
 - A. Set the mode „Mode“ to “apsta”
 - B. Enter information about the network which you want to integrate the balance into (network „AP Name“ and password „AP Password“)
 - C. Save the settings „Save“ and update the site

The screenshot shows the ESP8266 WebConfig interface with three main configuration panels: Serial Setting, SoftAP, and Station. Each panel has a 'Save' button at the bottom. The Station panel also has 'Restore' and 'Reboot' buttons at the top right. Three callout boxes labeled A, B, and C are positioned to the right of the Station panel, pointing to the Mode, AP Name/Password, and Save buttons respectively.

Serial Setting	SoftAP	Station
Baud: 115200	SSID: AI-THINKER_872B77	Mode: apsta
Databits: 8	Passwd: [empty]	AP Name: YKV_Net
Parity: NONE	Auth Mode: OPEN	AP Password: YKV123456
Stopbits: 1	IP addr: 192.168.4.1	IP address: 0.0.0.0
	Subnet mask: 255.255.255.0	Subnet mask: 0.0.0.0
	Gateway: 192.168.4.1	Gateway: 0.0.0.0
	Mac: bc:dd:c2:87:2b:77	Mac: bc:dd:c2:87:2b:77

3. Separate the access point from the computer
4. Cut the power supply to the balance for a short moment
5. Connect the computer again to the access point of the balance and update the website
 - D. Now the IP-address „IP address“ is displayed

The image shows the ESP8266 WebConfig interface with three main configuration panels: Serial Setting, SoftAP, and Station. Each panel has a 'Save' button at the bottom. The Station panel is highlighted with a 'D' label.

Serial Setting	SoftAP	Station
Baud: 115200	SSID: AI-THINKER_872B77	Mode: apsta
Databits: 8	Password: [Redacted]	AP Name: YKV_Net
Parity: NONE	Auth Mode: OPEN	AP Password: YKV123456
Stopbits: 1	IP addr: 192.168.4.1	IP address: 192.168.132.32
	Subnet mask: 255.255.255.0	Subnet mask: 255.255.255.0
	Gateway: 192.168.4.1	Gateway: 192.168.132.1
	Mac: bc:dd:c2:87:2b:77	Mac: bc:dd:c2:87:2b:77

6. Close the website
7. Connect the computer to the selected network
8. Enter the IP / Port into the target software: 23

The image shows the 'IP port properties' dialog box with the following settings:

- Connection type: TCP - client - connecting
- Local IP address: [Empty]
- Target host IP addr.: 192.168.132.32
- Port: 23
- Keep-Alive:

9.6.1 Print function

After a correct connection of the software and the balance, the weighing data can be

transferred using the button  on the balance.

Printout example:

30.06.2020	10:04:36:	SS	0.000 kg	(stable)
------------	-----------	----	----------	----------

The weighing result can also be sent with remote control commands.

9.6.2 Remote control instructions

S	Send stable value
T	Tare balance
Z	Set balance to zero

30.06.2020	10:04:36:	S		(stable emission)
30.06.2020	10:04:36:	SS	0.000 kg	(stable)

10 Menu



Access to service menu „tCH“ is locked in verified balances.

To disable the access lock, destroy the seal mark and actuate the adjustment switch. Position of the adjustment switch see chap. 15.1.

Attention:

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

10.1 Navigation in the menu

<p>Call up menu</p>	<p>⇒ Switch-on the balance, in weighing mode press  and keep it pressed for approx. 3 sec., until the first function AF appears.</p>
<p>Select function</p>	<p>⇒ With help of  or , the individual functions can be selected one after the other.</p>
<p>Change settings</p>	<p>⇒ Confirm selected function by . The current setting will be displayed.</p> <p>⇒ Select desired setting with  or  and acknowledge by  or reject with .</p>
<p>Exit menu/ Return to weighing mode</p>	<p>⇒ Press , Exit will be displayed. Using  the balance returns into the weighing mode.</p>

10.2 Menu overview

Function	Settings	Description
AF Automatic shutdown Auto off	AF oFF	Automatic shutdown switched off
	AF 30	Automatic shutdown after 30 min.
	AF 60	Automatic shutdown after 60 min.
	AF 180	Automatic shutdown after 180 min.
rSt reset to factory setting		Reset weighing scale to factory setting

11 Error messages

Display

Description



Zero setting range exceeded

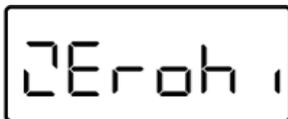


(on start-up or when pressing the key)

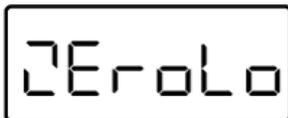
- Load on weighing pan
- Excess load, during zero setting of weighing scale
- Wrong adjustment process
- Fault on load cell



Battery capacity exhausted



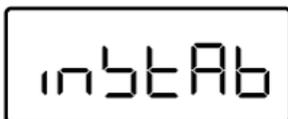
Zero setting range exceeded



Zero setting range not achieved



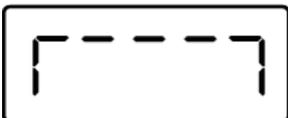
Adjustment error



Load instable



Underload



Overload

Should other error messages occur, switch balance off and then on again. If the error message remains inform manufacturer.

12 Servicing, maintenance, disposal

12.1 Cleaning

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

12.2 Cleaning / disinfecting

Clean the weighing platform and the housing with household detergent or commercially available disinfectant, e.g. 70% isopropanol. We recommend a disinfectant suitable for wiping disinfection. Please follow manufacturer's instructions.

Do not use abrasive or aggressive cleaners such as spirits or alcohol or similar as they might damage the high-quality surface.

To prevent cross-contamination (fungal skin infection) please observe the following time intervals for disinfection:

- Weighing plate before and after any measurement with direct skin contact
- When required:
 - Display
 - Touch-sensitive keyboard

	<ul style="list-style-type: none">⇒ Do not spray the device with disinfectant, just wipe it.⇒ Make sure that disinfectant does not penetrate the interior of the balance.⇒ Remove dirt immediately.
---	---

12.3 Sterilisation

Sterilisation of the appliance not allowed.

12.4 Servicing, maintenance

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

We recommend a regular safety-related technical check (STK).

Disconnect scales from mains before opening.

12.5 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.

13 Instant help for troubleshooting

In case of a fault in the program sequence, the balance should be shortly switched off. The weighing process must then be restarted from the beginning.

Fault:

Possible causes:

The weight display does not glow.

- The balance is not switched on
- The mains supply connection has been interrupted (mains cable not plugged in/faulty).
- Power supply interrupted.
- The rechargeable battery / the batteries is/ are inserted incorrectly or empty
- No rechargeable battery / no batteries is/ are inserted

The displayed weight is permanently changing

- Draught/air movement
- Table/floor vibrations
- The weighing pan is in contact with foreign bodies or is not correctly positioned
- 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
- The balance is on an uneven surface
- Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)

No data can be transferred to the WIFI interface.

- The mains signal is not stable or too weak
- Wrong interface configuration

Should other error messages occur, switch balance off and then on again. If the error message remains inform manufacturer.

14 Verification

General:

According to EU directive 2014/31/EU 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 purposes
- d) For manufacturing final packages
- e) Determination of mass in the practice of medicine that is, weighing patients for reasons of medical supervision during medical surveillance, examination and treatment,

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

Verification notes:

An EU type approval exists for balances described in their technical data as verifiable. If the balance is used where obligation to verify exists as described above, it must be verified and re-verified at regular intervals.

Re-verification of a balance is carried out according to the respective national regulations. Validity period of verification, see chap. 14.1.

The legal regulation of the country where the balance is used must be observed!



Verification of the balance is invalid without the seal.

The seal marks attached on balances with type approval point out that the balance may only be opened and serviced by trained and authorized specialist staff. If the seal mark is destroyed, verification loses its validity. Please observe all national laws and legal regulations. In Germany a re-verification will be necessary.

Balances with obligation to verify must be taken out of operation if:

- The **weighing result** of the balance is outside the **error limit**. Therefore, in regular intervals load balance with known test weight (ca. 1/3 of the max. load) and compare with displayed value.
- The **reverification deadline** has been exceeded.

14.1 Verification validity period (current status in D)

Personal balances (including chair and wheelchair scales) in hospitals	4 years
Personal balances, when not located in hospitals (for example, doctor's surgeries and nursing homes)	unlimited
Baby balances and mechanical birth weight scales	4 years
Bed scales	2 years
Scales in dialysis stations	unlimited

Notes:

- Also rehab clinics and health authorities are treated as hospitals
- Not treated as hospitals (verification validity not limited) are dialysis stations, nursing homes and doctor's surgeries.

(Data source : "Bureau of Standards News, Weighing Instruments in Medicine")

15 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each display unit with connected weighing pan 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.

	<ul style="list-style-type: none"> • Prepare the required adjustment weight. The adjustment weight to be applied depends on the capacity of the balance, see chap. 1. Carry out adjustment as closely as possible to admissible maximum load of the balance. Info about test weights can be found on the Internet at: http://www.kern-sohn.com. • Observe stable environmental conditions. A warm-up time is required for stabilisation, see chap. 1.
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	<p>Access to service menu „tCH“ is locked in verified balances. To disable the access lock, destroy the seal mark and actuate the adjustment switch. Position of the adjustment switch see chap. 15.1.</p> <p>Attention: After destruction of the seal mark 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.</p>
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Procedure:

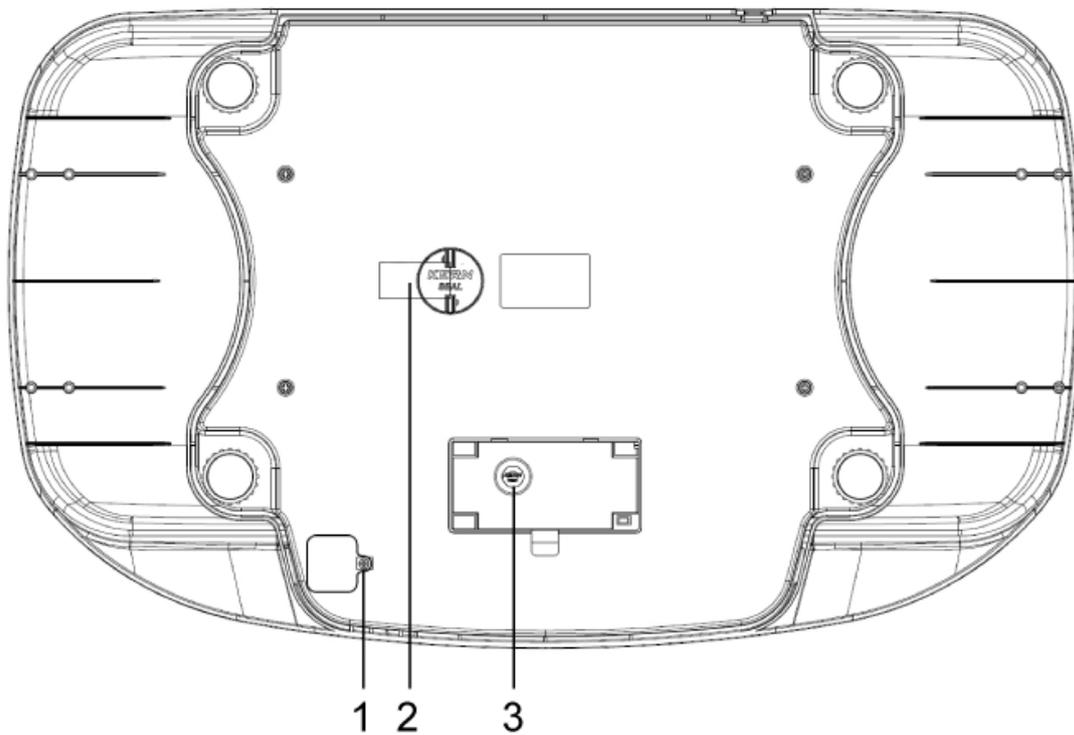
 ↓ 	<p>Switch on balance</p> <p>Operate adjustment switch; position see chap.15.1</p> <p>The balance is now in service menu.</p>
	<p>Press  or  repeatedly until cAL E appears</p>
 (example)	<p>Confirm with , the adjustment weight selected as last is displayed, e.g. 5000 kg</p>
 (example)	<p>Select desired setting with  or  and acknowledge by .</p>

<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">PutLd</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">0.000</div>	<p>Put Ld is shortly displayed, the first adjustment point 0.000 kg is displayed.</p> <p>Unload the balance and confirm with </p>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">WAit</div> <p style="text-align: center;">↓</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">PutLd</div> <p style="text-align: center;">↓</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">15.000</div> <p style="text-align: center;">(example)</p>	<p>WAit, followed by Put Ld is displayed, followed by the set adjustment weight.</p> <p>Place adjustment weight and confirm by . The adjustment is carried out, after that the balance switches off automatically.</p>

An adjusting error or incorrect adjustment weight will generate an error message („Err 4“), repeat the adjustment process.

15.1 Adjustment switch and seals

Position adjustment switch and seal marks:



1. Self-destroying seal mark
2. Self-destroying seal mark
3. Sealing mark, adjustment switch below

16 Equipment (option)

Item number	Type number	Product
MBA-A01	TMBA-A01-A	Height measuring stick
YKA-43	TYKA-43-A	Power supply unit (EU/UK/CH)
YKA-44	TYKA-44-A	Power supply unit (EU)
YMI-A01	TMBA-A02-A	WIFI interface (factory option)