

KERN

KERN & Sohn GmbH

Ziegelei 1
D-72336 Balingen
E-Mail: info@kern-sohn.com

Tel: +49-[0]7433-9933-0
Fax: +49-[0]7433-9933-149
Internet: www.kern-sohn.com

Operating instructions Baby scale

KERN MBC

MBC 15K2DNM
MBC 20K10NM
MBC 15K2DEM
MBC 20K10EM

Version 2.0
2018-08
GB



MBC-BAPS-e-1820



KERN MBC

Version 2.0 2018-08

Operating instructions

Baby scale

Contents

1	Technical data	4
2	Declaration of conformity	6
3	Appliance overview	6
3.1	Overview of display.....	7
3.2	Keyboard overview.....	8
4	Basic Information (General)	9
4.1	Proper use.....	9
4.2	Improper Use	9
4.3	Warranty	10
4.4	Monitoring of Test Resources.....	10
5	Basic Safety Precautions	10
5.1	Pay attention to the instructions in the Operation Manual	10
6	Transport and storage	11
6.1	Testing upon acceptance	11
6.2	Packaging / return transport	11
7	Unpacking, Setup and Commissioning	11
7.1	Installation Site, Location of Use.....	11
7.2	Unpacking	12
7.3	Scope of delivery.....	12
7.3.1	Modelle MBC-NM	12
7.3.2	Modelle MBC-EM	12
7.4	Placing.....	13
7.5	Rechargeable battery operation	14
7.6	Battery operation.....	15
7.7	Mains connection	16
7.8	Optional power supply units	16
7.9	Initial Commissioning	16
8	Operation	17
8.1	Weighing	17
8.2	Taring.....	17
8.3	Hold function (Standstill function)	18
8.4	Feeding function (control of weight gain).....	18
8.5	Show another decimal place (not verified value).....	19
8.6	Use the optional size measurement device.....	19
9	Menu	20
9.1	Navigation in the menu	20

9.2	Menu overview	21
10	Error messages	23
11	Service, maintenance, disposal	24
11.1	Cleaning	24
11.2	Cleaning / Disinfecting	24
11.3	Sterilisation	24
11.4	Service, maintenance	24
11.5	Disposal	24
12	Instant help	25
13	Adjustment	26

1 Technical data

KERN (Type)	MBC 15K2DNM	MBC 20K10NM
Trademark	MBC 15K2DM	MBC 20K10M
Weighing range (max)	6 kg / 15 kg	20 kg
Readability (d)	2 g / 5 g	10 g
Reproducibility	2 g / 5 g	10 g
Linearity \pm	2 g / 5 g	10 g
Display	LCD with 25mm high digits	
Recommended adjustment weight, not added (class)	15 kg (M1)	20 kg (M1)
Stabilization time (typical)	3 sec.	
Warm-up time	10 min	
Operating temperature	10° C + 40° C	
Humidity of air	max. 80 % (not condensing)	
Input Voltage	100 V - 240 V, 50 / 60 Hz	
Auto Off	After "x" min adjustable without load change	
Dimensions fully mounted (W x D x H) mm	890 x 470 x 175 (with integrated height measuring device) 600 x 407 x 120 (without height measuring device)	
Dimensions display unit (W x D x H) mm	200 x 130 x 60	
Baby weighing pan (WxD) mm	600 x 280 x 55	
Weight kg (net)	4,6	
Rechargeable battery operation	optional; 6 x 1.2 V 2000 mA	
Height measuring device, integrated	Measuring range: 40 - 80 cm	

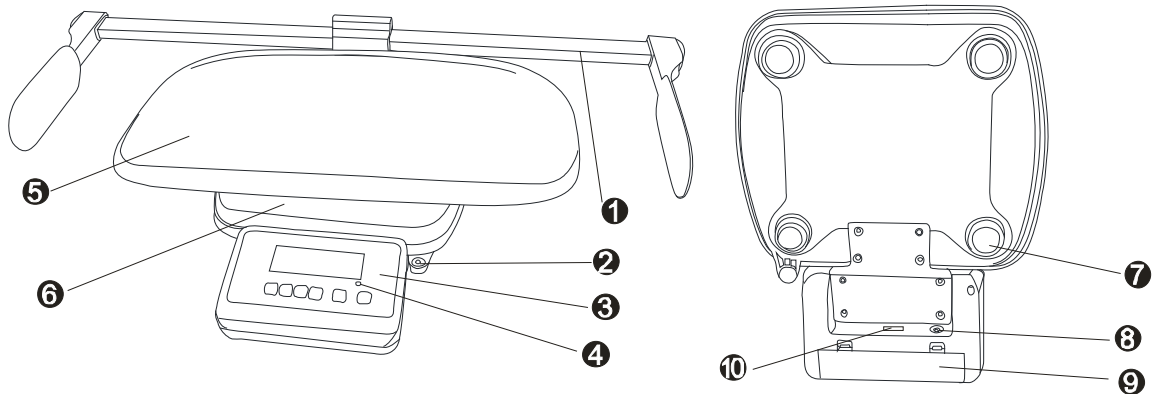
KERN (Type)	TMBC 15K2DEM-A	TMBC 20K10EM-A
Model	MBC 15K2DEM	MBC 20K10EM
Weighing range (max)	6 kg / 15 kg	20 kg
Readability (d)	2 g / 5 g	10 g
Reproducibility	2 g / 5 g	10 g
Linearity \pm	2 g / 5 g	10 g
Display	LCD with 25mm high digits	
Recommended adjustment weight, not added (class)	15 kg (M1)	20 kg (M1)
Stabilization time (typical)	3 sec.	
Warm-up time	10 min	
Operating temperature	10° C + 40° C	
Humidity of air	max. 80 % (not condensing)	
Input Voltage	100 V - 240 V, 50 / 60 Hz	
Auto Off	After "x" min adjustable without load change	
Dimensions fully mounted (W x D x H) mm	890 x 470 x 175 (with integrated height measuring device) 600 x 407 x 120 (without height measuring device)	
Dimensions display unit (W x D x H) mm	200 x 130 x 60	
Baby weighing pan (WxD) mm	600 x 280 x 55	
Weight kg (net)	4,6	
Rechargeable battery operation, optional	MBC-A08, internally 6x1.2 V 2000 mA	
Batteries	6 x 1.5 V AA	
Height measuring rod	MBC-A01, Measuring range: 40 - 80 cm	

2 Declaration of conformity

To view the current EC/EU Declaration of Conformity go to:

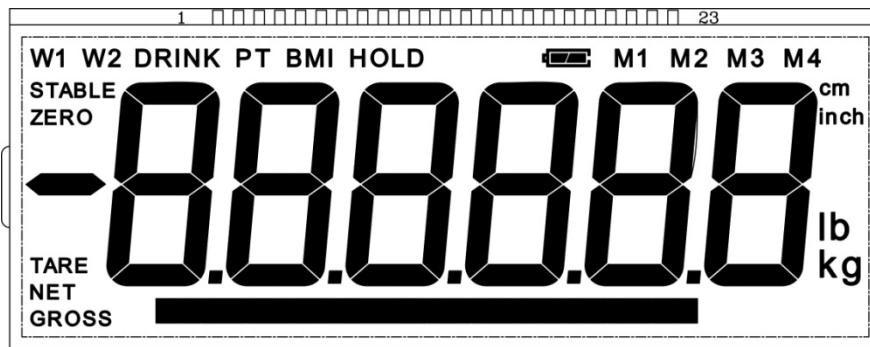
www.kern-sohn.com/ce





3 Appliance overview



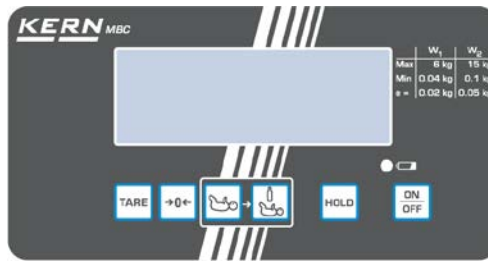
1. Height measuring rod (optional)
2. Bubble level
3. Display Unit
4. LED
5. Baby weighing pan
6. Weighing pan
7. Rubber feet (height adjustable)
8. Mains connection
9. Battery compartment
10. RS232

3.1 Overview of display



Display	Description	Description
GROSS	Gross weight display	Lights up during indication of the gross weight of the baby (after drinking)
NET	Net weight display	Lights up during indication of the net weight of the baby (before drinking) Illuminated after weighing scale was tared
ZERO	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.
STABLE	Stability display	Scales are in a steady state
DRINK	DRINK function	Is displayed with active drink function
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.
		Lights when the rechargeable battery is fully charged.

3.2 Keyboard overview



MBC 15K2DNM

MBC 15K2DEM

MBC 20K10NM

MBC 20K10EM

Key

Description

Function



ON/OFF-switch

Turn on/off



Zeroing key

Weighing scale will be reset to „0.0“ kg.

For numeric entry:

- Change decimal place



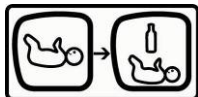
HOLD button

Hold function



TARE button

Tare balance



Feeding Function key

Differential weighing before and after the baby drinks



The net weight of the baby will be shown:
Before drinking

In menu:

- Call up menu
- How to select menu items

For numeric entry:

Edit numeric value



The gross weight is displayed:
After drinking

In menu:

- ⇒ Confirm selection

For numeric entry:

- ⇒ Confirm numerical value

4 Basic Information (General)

4.1 Proper use

The scales are used for determining the body mass of children .



4.2 Improper Use

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 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.

Do not use the scales for determining body mass in medicine.

4.3 Warranty

Warranty claims shall be voided in case

- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened
- mechanical damage 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



4.4 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 height measuring rod, however, this is not mandatory as the determination of human body height involves rather large, intrinsic inaccuracies.

5 Basic Safety Precautions

5.1 Pay attention to the instructions in the Operation Manual

	<p>⇒ Carefully read this operation manual before setup and commissioning, even if you are already familiar with KERN balances.</p>	
---	--	---

6 Transport and storage

6.1 Testing upon acceptance

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

6.2 Packaging / return transport



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

7 Unpacking, Setup and Commissioning

7.1 Installation Site, Location of Use

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

On the installation site observe the following:

- Place scales 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.

7.2 Unpacking

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

7.3 Scope of delivery

7.3.1 Modelle MBC-NM

- Balance
- Power pack unit
- Operating instructions

7.3.2 Modelle MBC-EM

- Weighing scale with tripod
- Batteries 6 x AA 1,5 V
- Operating instructions

7.4 Placing

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

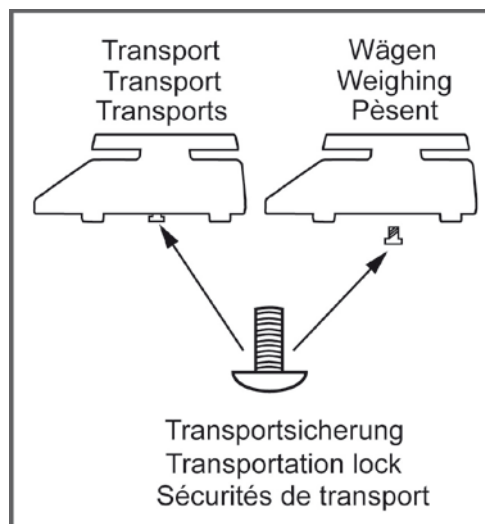


Make sure that all transport locking devices are removed

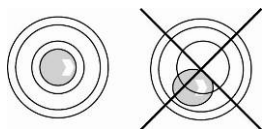


To loosen the transport guard screw out transport screw [1] anticlockwise.

For transportation carefully screw-in transport screw clockwise till to the stopper and then fix it using locknut.



Levelling




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




7.5 Rechargeable battery operation

(is possible by obtaining an optional battery power pack)



Open the battery compartment cover (1) at the base of the display unit and insert the rechargeable battery pack. Charge the battery for at least 12 hours before initial use.


The appearance of the symbol  in the weight display indicates that the battery pack is almost exhausted. The weighing scale will remain ready for operation for a few more minutes before switching off in order to save battery. Load rechargeable battery.




-  Voltage has dropped below prescribed minimum.
-  Rechargeable battery very low.
-  Rechargeable battery completely reloaded

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


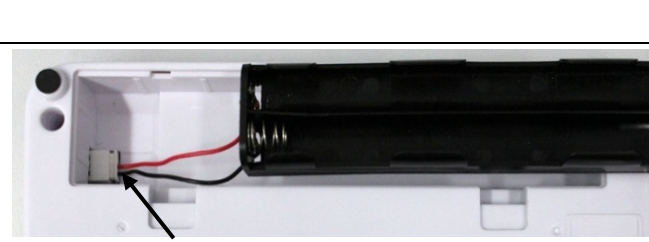
7.6 Battery operation

As an alternative to rechargeable battery operation, the balance may also be operated with 6x AA batteries.

Open battery compartment cover (1) at the lower side of the display unit and insert batteries according to the example below. Lock the battery cover again. If the batteries are empty, in the balance display appears the symbol . Change batteries. To save battery power, the balance switches off automatically (see chap.11.6 Auto off).

-  Capacity of batteries exhausted.
-  Batteries will soon be flat.
-  Batteries are completely charged

Insert batteries

Remove battery compartment cover	
Connect battery holder to housing contact acc. to illustration	

Insert battery holder



Insert batteries into battery compartment and lock with battery compartment cover.



7.7 Mains connection

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

It is allowed to use only admitted, original power supply adaptors of KERN company.

The small sticker attached to the side of the display unit indicates the power port:



The LED remains illuminated as long as the weighing scale remains connected to the mains.

The LED display provides information about the battery's charging status.

Green: battery is fully charged

Blue: battery is charging

7.8 Optional power supply units

Available power supply units (optionally)

- MBC-A04 (AUS/EU/UK/US/CH)
- MBC-A10 (EU/CH)

7.9 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. 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.


8 Operation

8.1 Weighing



- ⇒ Start balance by pressing . The balance will carry out a self-test. The scales are ready for operation as soon as the weight display for "0.0kg" has appeared.



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

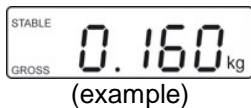
- ⇒ Put the baby in the centre of the weighing pan.
⇒ Wait for stability display "STABLE", then read the weighing result.



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


8.2 Taring

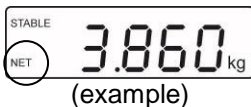
The tare weight of any preloads can be deducted by pressing a button so that the actual weight of the baby is displayed in subsequent weighings.



- ⇒ Put object (such as towel or padding) on the weighing pan.
⇒ Wait until stability display „STABLE“ appears



- ⇒ Press , the zero display appears.



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



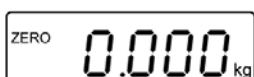
- When the balance is unloaded the saved taring value is displayed with negative sign.

- To delete the stored tare value, release scales and press

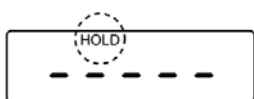


8.3 Hold function (Standstill function)

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



- ⇒ Start balance by pressing . Wait for "0.000" display to appear.

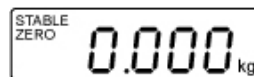


- ⇒ Put the baby in the centre of the weighing pan Press button, „-----“, is displayed. In addition the „HOLD“ symbol appears.



(Beispiel)

- ⇒ The weight of the baby will be displayed and „frozen“.
- ⇒ After unloading the balance, the weighing value remains displayed for approx. 10 seconds, than the balance returns automatically into the weighing mode. The „HOLD“ symbol disappears.



8.4 Feeding function (control of weight gain)

The baby's weight can be saved before feeding. Then the weight gain can be calculated by pressing a button.



- ⇒ Start balance by pressing . Stability display await "STABLE"



(example)

- ⇒ Place the baby on the weighing pan center before feeding.
- ⇒ After the stability display shows "STABLE", press . The weight of the baby is recorded and stored. Display "DRINK" lights up.




⇒ Take the baby from the weighing pan.




⇒ Place the baby on the scale pan after feeding.




⇒ Press , the difference between the weight and the value before and after breastfeeding is displayed.



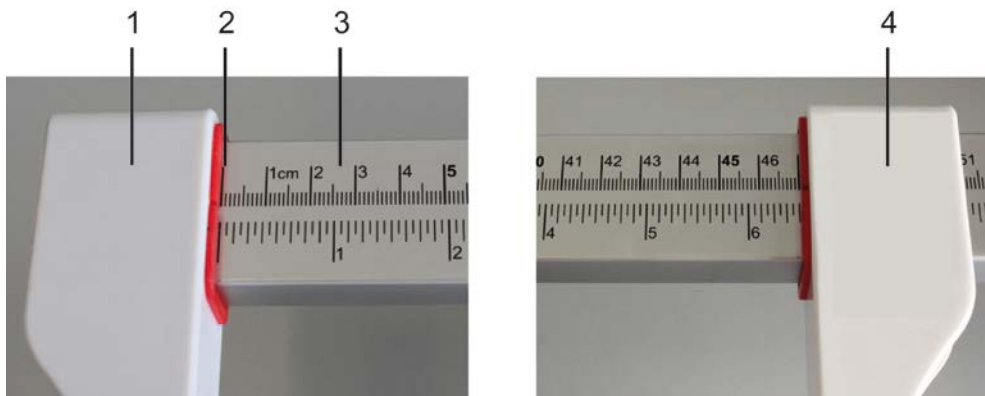
By pressing the  button, the balance returns to the normal weighing mode.

8.5 Show another decimal place (not verified value)

Press  and hold for about 2 s whilst weighed result is being shown. The second decimal place will be shown for approx. 5 s.

8.6 Use the optional size measurement device

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



For this purpose proceed as follows:

- ⇒ Put the head stopper (left) (1) to zero (2)
- ⇒ Put the baby in the centre of the weighing pan.
- ⇒ Move the height measuring rod (3) carefully to the right until the head stopper (3) gently touches the baby's head
- ⇒ With the right hand push the foot stopper (right) (4) carefully to the soles of the baby
- ⇒ On the scale read the baby's size.




For further information (for example, installation), refer to the instruction manual that comes with the height measurement.


9 Menu

9.1 Navigation in the menu





Call up menu

- ⇒ Turn on the scale during the self-test press  , the first function **[F1 OFF]** is displayed.

Select function


- ⇒ With help of  , the individual functions can be selected one after the other.

Change settings




- ⇒ Confirm selected function by  . The current setting will be displayed.
- ⇒ Select the desired setting with  and press  to confirm or  to reject, the balance returns to the menu.

Exit menu/

Return to weighing mode

- ⇒ Press  , the balance will return to weighing mode.

9.2 Menu overview

Function	Settings	Description
F1 oFF Automatic cutout Auto Off	oFF 0*	Automatic shutdown off
	oFF 3	Automatic shutdown after 3 min
	oFF 5	Automatic shutdown after 5 min
	oFF 15	Automatic shutdown after 15 min
	oFF 30	Automatic shutdown after 30 min
F2 bk Background illumination of display	bl on	Back lighting for display on
	bl oFF	Display background illumination off
	bl AU*	Backlighting for display will come on automatically as soon as the weighing scale is operated.
tCH Service menu	Pin	If display shows "Pin" adjust switch. Then press  ,  ,  subsequently.
P1 Spd Display speed	15*	Not documented
	30	
	60	
	7.5	

P2 CAL	duA in	dESC	C 0.00	
			C 0.000	
			C 0.0000	
			C 0	
			C 0.0	
			inC	Sd iv 1
		Sd iv 2		div 1, 2, 5, 10, 20, 50
		CAP	CAP 1	
			CAP 2	
		CAL	UnLoAd	
		StrAnG	St 100	
			St 200	
	St 500			
	duA rA	dESC	C 0.00	
			C 0.000	
			C 0.0000	
			C 0	
			C 0.0	
			inC	Sd iv 1
		Sd iv 2		div 1, 2, 5, 10, 20, 50
		CAP	CAP 1	
			CAP 2	
		CAL Justierung	UnLoAd	
		StrAnG	St 100	
			St 200	
	St 500			
	SnG rA	dESC	C 0.00	
C 0.000				
C 0.0000				
C 0				
C 0.0				
inC			Sd iv 1	div 1, 2, 5, 10, 20, 50
		Sd iv 2	div 1, 2, 5, 10, 20, 50	
CAP		CAP 1		
		CAP 2		
CAL		UnLoAd		
StrAnG		St 100		
		St 200		
	St 500			

P3 Pro	tri	Not documented
	CoUnt	Not documented
	rESEt	Reset weighing scale to factory setting
	SEtGrA	Not documented

* default setting


10 Error messages

Display

Description



Zero range exceeded

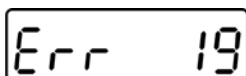
(on start-up or when pressing the  key)

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



Value outside the A/D changer range

- Damaged weighing cell
- Damaged electronics



Lack of possibility of zero point initiation

- Damaged / overloaded measuring cell
- The objects are located on the platform / have contact with it
- Unremoved transportation protection
- Main Board damaged

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

11 Service, maintenance, disposal

11.1 Cleaning



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

11.2 Cleaning / Disinfecting

Clean weighing platform (such as seat) as well as casing with household detergents or commercially available disinfectants, 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



Do not spray disinfectants onto appliance.

Make sure that disinfectant does not penetrate the interior of the balance.

Remove dirt immediately.

11.3 Sterilisation

Sterilisation of the appliance is not allowed.

11.4 Service, maintenance

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

Disconnect the scales before opening.

11.5 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.

12 Instant help

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.

Failure:

Possible causes:

The displayed weight does not glow.

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

The displayed weight is permanently changing

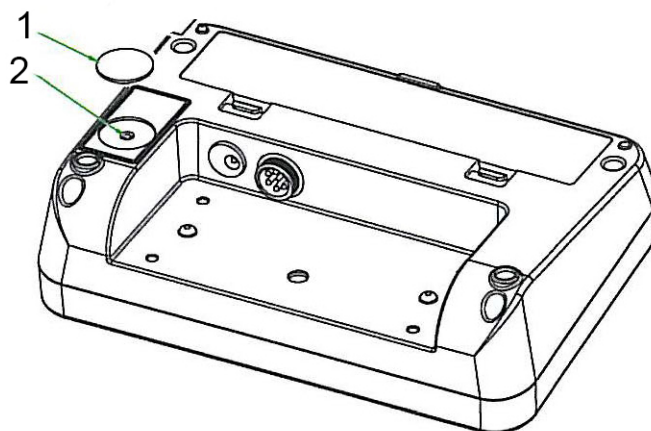
- Draught/air movement
- Table/floor vibrations
- The weighing pan is in contact with foreign bodies or is not correctly positioned.
- Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)

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)

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

Position adjustment switch



1. Cover
2. Adjustment switch





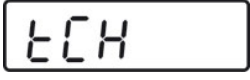





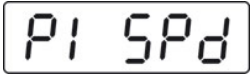


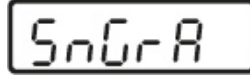
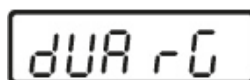
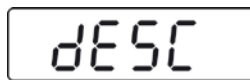






13 Adjustment







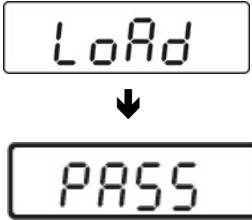


As the acceleration value due to gravity is not the same at every location on earth, each display unit with connected weighing plate must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the 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.



- Prepare the required adjustment weight. The adjustment weight to be applied depends on the capacity of a weighing scale, see chap. 1. Carry out adjustment as closely as possible to admissible maximum load of weighing scale. Information about test weights you will find in the internet under <http://www.kern-sohn.com>
- Observe stable environmental conditions. For warm-up time required for stabilisation see chpt 1.

Procedure:

 <p>↓</p> 	<p>⇒ Turn on the scale during the self-test press , the first function [F1 OFF] is displayed.</p> <p>⇒ Press  repeatedly until "t CH" is displayed.</p>
	<p>⇒ Press , [Pin] is displayed</p>
	<p>Operate adjustment switch; for position see chap.13</p> <p>Press ,  and  subsequently, [P1 SPd] will appear</p>
 <p>↓</p> 	<p>⇒ Press , „P2 CAL“ will be displayed</p>
 <p>↕</p>  <p>↓</p> 	<p>⇒ Press , the currently set balance type is displayed.</p> <p>SnGrA = single range balance dUARg = dual range balance</p> <p>⇒ To change select scale type with  and confirm with , [dESC] appears.</p>
	<p>⇒ Press  repeatedly until „CAL“ will be displayed.</p> <p>⇒ Confirm with , [UnloAd] appears</p>

	<p>⇒ Ensure that there are no objects on the weighing pan.</p> <p>⇒ Wait for stability display "STABLE", then confirm with </p>
 <p>(example)</p>	<p>⇒ The size of the currently set adjustment weight is displayed, the active site flashes.</p> <p>If required, select with  the digit to be altered and change the digit with .</p> <p>Confirm with , [LoAd] appears</p>
	<p>⇒ Put the required adjustment weight carefully in the centre of the weighing pan.</p> <p>⇒ Wait until stability display „STABLE“ appears</p> <p>⇒ Confirm with  [PASS] is displayed.</p>
	<p>After the adjustment the balance will carry out a self-test. Remove adjusting weight during selftest, balance will return into weighing mode automatically.</p> <p>An adjusting error or incorrect adjusting weight will be indicated by the error message; repeat adjustment procedure.</p> <p>An adjusting error or incorrect adjustment weight will generate an error message („Err 4“), repeat the adjustment process.</p>