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Operating manual
Chair scale

KERN MCD

Version 1.0
2017-10
GB



MCD-BA-e-1710

GB

KERN MCD

Version 1.0 2017-10

Operating manual chair

English

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1 Technical data

KERN	MCD 300K-1
Readability (d)	0.1 kg
Weighing range (max)	300 kg
Reproducibility	0.1 kg
Linearity	± 0.1 kg
Recommended adjustment weight (Class)	300 kg (M1)
Weighing Units	kg
Warm-up time	10 min
Electric Supply	Battery : 6 x 1.5 V AA
Operating temperature	+10°C … + 40°C
Humidity of air	max. 80 % (not condensing)
Dimensions (B x D x H) mm	625 x 990 x 985
Dimensions Weighing surface	500 x 360 x 370
Weight kg (net)	20

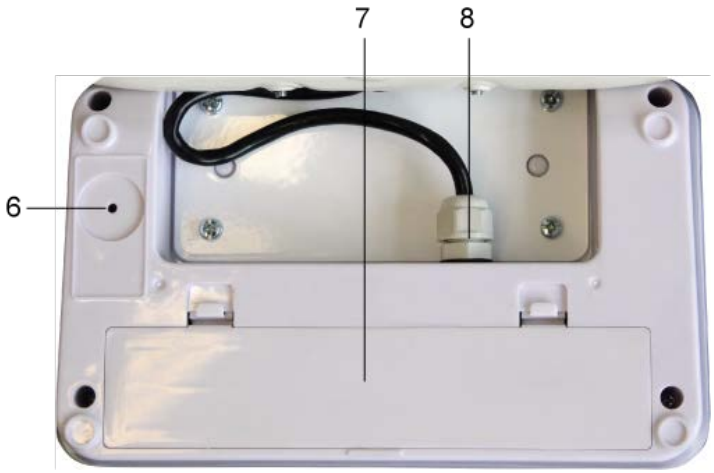
2 Declaration of conformity

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

www.kern-sohn.com/ce

3 Appliance overview





1. Seat pan
2. Bubble level
3. Display Unit
4. Manipulations
5. Parking brake
6. Adjustment switch
7. Battery compartment
8. Connection cable "Display - Chair"

English

Details:



Parking brake

(please lock at every weighing process)

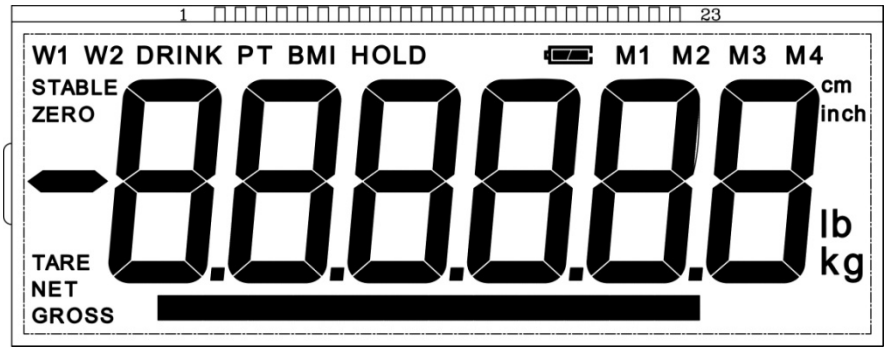


Foot rests



Folding arm rests

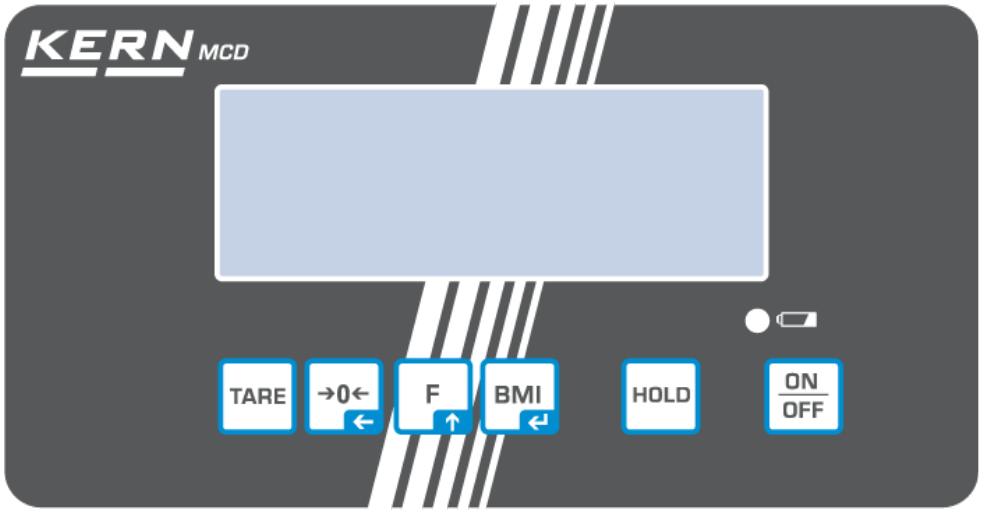
3.1 Overview of display



Display	Designation	Description
GROSS	Gross weight display	Lights up during indication of the gross weight
NET	Net weight display	Lights up during indication of the net weight 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
BMI	Body Mass Index	Is actively displayed during active BMI function
HOLD	HOLD function	Is displayed with active hold function
	Battery symbol	Lights when the voltage drops below the prescribed minimum.
		Lights when the battery capacity is almost exhausted.
		Lights when the battery is fully charged.

English

3.2 Keyboard overview



Button	Designation	Function
ON OFF	ON/OFF button	Turn on/off
HOLD	**HOLD** button	Hold function
BMI	BMI key	Calculation of the Body Mass Index **In menu:** • Confirm selection **For numeric entry:** • Confirm numerical value
F	Function key	**In menu:** • Call up menu • Select menu items **For numeric entry:** • Increase numerical value
→0←	Zero setting key	Weighing scale will be reset to „0.0“ **For numeric entry:** • Change decimal place
TARE	TARE key	Tare balance

English

4 Basic Information (General)

4.1 Proper use

These scales are used to determine weight of people sitting at rest,
The person should be weighed carefully and have contact with the center of the seat, sit and stay calm.

As soon as a stable weighing value is reached the weighing value can be read.
The scales are designed for long-term usage.

Determination of the body weight.
Use as „non-standalone weighing scale“, that is, a person sits carefully onto the seating surface’s centre. Once a steady display value is shown, you can read the weight value.

English

	The instruments shall only be used by people who can sit still.

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

- As long as the person is sitting on the chair scales, the wheel brakes must be locked **without fail.**
- Do not step onto the foot rests when stepping or leaving the chair scales!
- The chair scales may not be used for the transport of people!

4.2 Improper Use

Do not use these scales for dynamic weighing processes.
No permanent load on the seat area. This may damage the measuring system.
Impacts and overloading exceeding the stated maximum load (max) of the seating surface, 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 anesthetics and oxygen or laughing gas may occur.
Do not modify the construction of the scales. This may lead to incorrect weighing results, safety-related faults and destruction of the balances.
The balances may only be used according to the described conditions. Other areas of use must be released by KERN in writing.

The balance cannot be used to determine a body weight in practice of 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
- Modification or opening of appliances
- 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 of scales

4.4 Monitoring of Test Resources

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

5 Basic Safety Precautions

5.1 Pay attention to the instructions in the Operation Manual

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

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 against shifting and damage.

7 Unpacking, Setup and Commissioning

7.1 Place of installation / place of operation

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.

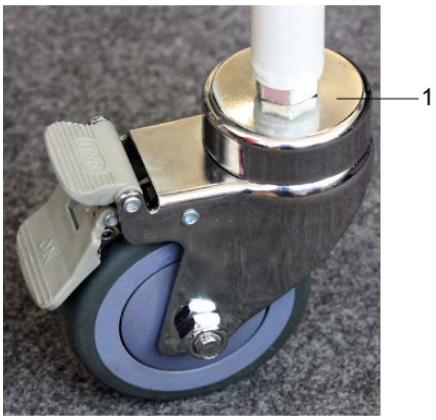
7.2 Unpacking

Remove the individual components of the balance or the complete balance from the packaging with care and install at the intended location. When using the power pack, ensure that the power cable does not produce a risk of stumbling.

7.3 Scope of delivery

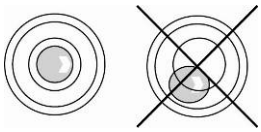
- Balance, completely assembled
- Operating manual

7.3.1 Roller



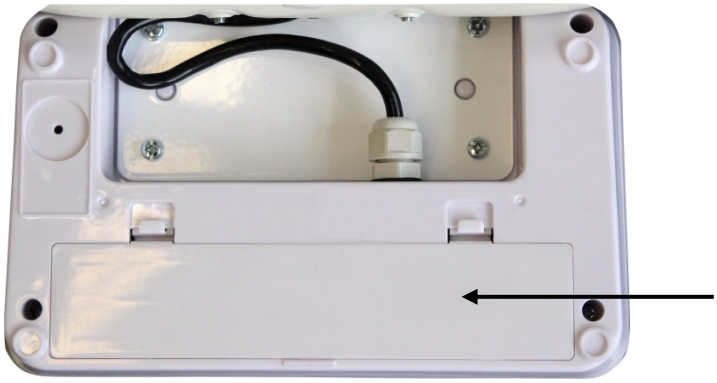
Check regularly if these nuts (1) are securely tightened and the brakes/wheels are in good working order.

7.3.2 Levelling



- ⇨ Level balance with foot screws until the air bubble of the water balance is in the prescribed circle.
- ⇨ Check levelling regularly.

7.4 Battery operation



Open battery compartment cover at the lower side of the display unit and insert 6 x 1.5 V AA- batteries according to the example 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 off automatically.

 Capacity of batteries exhausted.

 Batteries will soon be flat.

 Batteries completely loaded

Insert batteries:

Remove battery compartment cover	
Connect battery retainer as per illustration to the contact of the housing	

Insert battery retainer	
Insert batteries in the battery container and lock it with battery compartment cover.	

8 Operation

8.1 Weighing



⇨ Start balance by pressing ON/OFF.
The balance will carry out a self-test
The scales are ready for operation as soon as the weight display for “0.0 kg“ has appeared.

- However, you can reset the weighing scale to zero by pressing the →0← key.

⇨ Seat person in the centre of the seat pan.
⇨ Fold down the foot rests and place the patient’s feet on the respective foot rest.
⇨ Wait for stability display "STABLE", then read the weighing result.
⇨ Once the weighing process is completed fold up the foot rests.

- If a person is heavier than the maximum weighing range, “OL” (overload) will appear on the display screen.

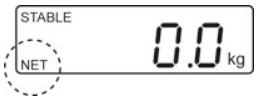
8.2 Taring

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



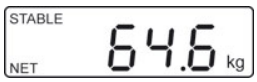
(example)

⇨ Put object (such as towel or padding) on the seating pan.



⇨ Press TARE, the zero display appears.

⇨ „NET" is shown at the bottom on the left.



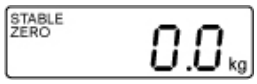
(example)

⇨ Seat person in the centre of the seat pan.
Wait until the standstill display „STABLE" appears, then read the weighing result.

- 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 TARE.

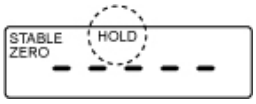
8.3 HOLD function

The balance has an integrated standstill function (mean value calculation). This allows correct weighing determination of a person although the latter is not keeping still on the seat surface.



⇨ Start balance by pressing ON/OFF.
Wait for stability display „STABLE to appear.

English



⇨ Press HOLD, in the display „**---------**“ will appear and the „HOLD“ symbol appears.

⇨ Have person sit in the centre of the chair.



(example)

⇨ After a short time the stability display „STABLE“ appears and the weighing value of the person is displayed and „frozen“.

After unloading the balance, the weighing value remains displayed for approx. 10 seconds, than the balance changes automatically into the weighing mode.
The „HOLD“ symbol disappears.



i	There is no average value calculation in the event of too much movement.

English

8.4 Calculation of the Body Mass Index

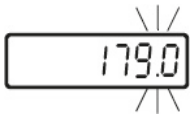
You need to know a person’s body height before you can calculate the BMI for that person. This should be known.





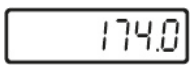
⇨ Start balance by ON/OFF

⇨ Allow the person to sit onto the chair



⇨ Wait for stability display „STABLE to appear.

⇨ Press BMI.
The most recently entered body height will be shown with the enable digit flashing.



⇨ To enter body height, press the →0← and F key.

⇨ Confirm the value entered with BMI.
The weighing scale is now in BMI mode and the BMI symbol will be appear and the kg display disappear.
The calculated BMI value will be displayed.





⇨ Return to weighing mode using BMI
The BMI symbol will disappear and the kg display will reappear.

- Reliable calculation of BMI is restricted to a body height of 100 cm to 200 cm and a weight of >10 kg.
- If weighing has to take place under unsteady conditions, you can be stabilise the display by applying the Hold function.

8.4.1 Classification of BMI values

Weight classification for adults over 18 years of age using the BMI in accordance with WHO, 2000 EK IV and WHO 2004.

Categorie	**BMI (kg/m^2)**	**Risk of diseases associated with overweight**
Underweight	< 18.5	Low
Normal weight	18.5 – 24.9	Average
Overweight	≥ 25.0	
Pre-adipose	25.0 – 29.9	A bit high
Adipose degree I	30.0 – 34.9	Increased
Adipose degree II	35.0 – 39.9	High
Adipose degree III	≥ 40	Very high

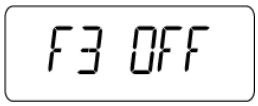
8.5 Automatic switch-off function „Auto Off“

The weighing scale will switch off automatically after the allotted time as long as neither the display unit nor the weighing surface is operated.

English



⇨ Switch-on balance by ON/OFF and during the selftest press F. **[F0 CAL]** is displayed.



⇨ Press F repeatedly until **[F3 oFF]** is shown.



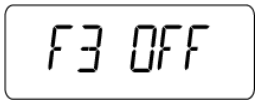
(example)

⇨ Press BMI, the last saved time is displayed, for example, **[3min]**



(example)

⇨ Select desired time with F e.g. **[15min]**



⇨ Save selected time with BMI, **[F3 oFF]** is displayed

⇨ Return to weighing mode using TARE

English

[oFF 3]	Weighing system will be turned off after 3 min.
[oFF 5]	Weighing system will be turned off after 5 min.
[oFF 15]	Weighing system will be turned off after 15 min.

9 Menu

9.1 Navigation in the menu

Call up menu	⇨ In weighing mode, press F and the first function **[F1 oFF]** will be displayed.
Select function	⇨ With help of F, the individual functions can be selected one after the other.

Change settings	⇨ Confirm selected function by BMI. The current setting will be displayed. ⇨ Select desired setting by F and confirm with BMI, the balance returns to the menu.
Exit menu/ **Return to weighing mode**	⇨ Press TARE, the balance will return to weighing mode.

9.2 Menu overview

Function	Settings	Description
F0 CAL Adjustment		Adjustment
F1 CAP	d 0, d 0.0, d 0.00, d 0.000, d 0.0000	Capacity
F3 OFF Automatic cutout Auto Off	oFF 3	Automatic shutdown after 3 min.
	oFF 5	Automatic shutdown after 5 min.
	oFF 15	Automatic shutdown after 15 min.
F4 GRA Gravity		Gravity
F5 COM	not documented	

English

10 Error messages

Display	Description
Err 4	**Zero range exceeded** (on start-up or when pressing the →0← key) • Load on weighing pan • Excess load, during zero setting of weighing scale • Incorrect adjusting process • Fault on load cell
Err 6	**Value outside the A/D converter range** • Damaged weighing cell • Damaged electronics
Err 19	**Unable to initialise zero point** • Measuring cell defective / overloaded • Object on weighing pan / contact • Transport safety device has not been removed • Main board defective
OL or --------	**Overload** • Unload, switch off and adjust the balance
------or „0“	**Underload** • Unload, switch off and adjust the balance

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

11 Servicing, 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 pan) 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.

11.3 Servicing, maintenance

The appliance may only be opened by trained service technicians who are authorized by KERN.
Disconnect the scales before opening.

11.4 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. ▪ Battery inserted incorrectly or empty. ▪ No battery inserted.
The displayed weight is permanently changing	▪ Draught/air movement ▪ Table/floor vibrations ▪ The seating surface 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)

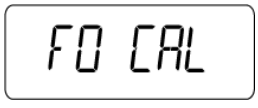
Should other error messages occur, switch balance off and then on again. If the error message remains inform manufacturer.

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. Info about test weights can be found on the Internet at: http://www.kern-sohn.com. • Observe stable environmental conditions. For warm-up time required for stabilisation see chpt 1.

Procedure:

	⇨ Switch-on balance by ON/OFF and during the selftest press F. **[F0 CAL]** is displayed.
	⇨ Press BMI, **[CAL]** will be displayed
	⇨ Press BMI again, **[ULOAD]** will be displayed.

	⇨ Wait for stability display, then press BMI, an adjustment weight will be displayed. The right digit flashes. Or confirm value with BMI, or enter a new value with the keys →0← and F confirm by BMI.
	⇨ Place a corresponding adjustment weight, wait for stability display and confirm by BMI.
	⇨ **[--------]** will be shortly displayed, followed by **[F0 CAL]** The adjustment is now finished. Should an error occur, repeat adjustment.

English