KERN & Sohn GmbH

Operating manual
Wheelchair scales

KERN MWB

Version 1.1
2019-05
GB

MWB-BA-e-1911

GB

KERN MWB
Version 1.1 2019-05
Operating manual
Wheelchair scales

English

Contents

English

1 Technical data

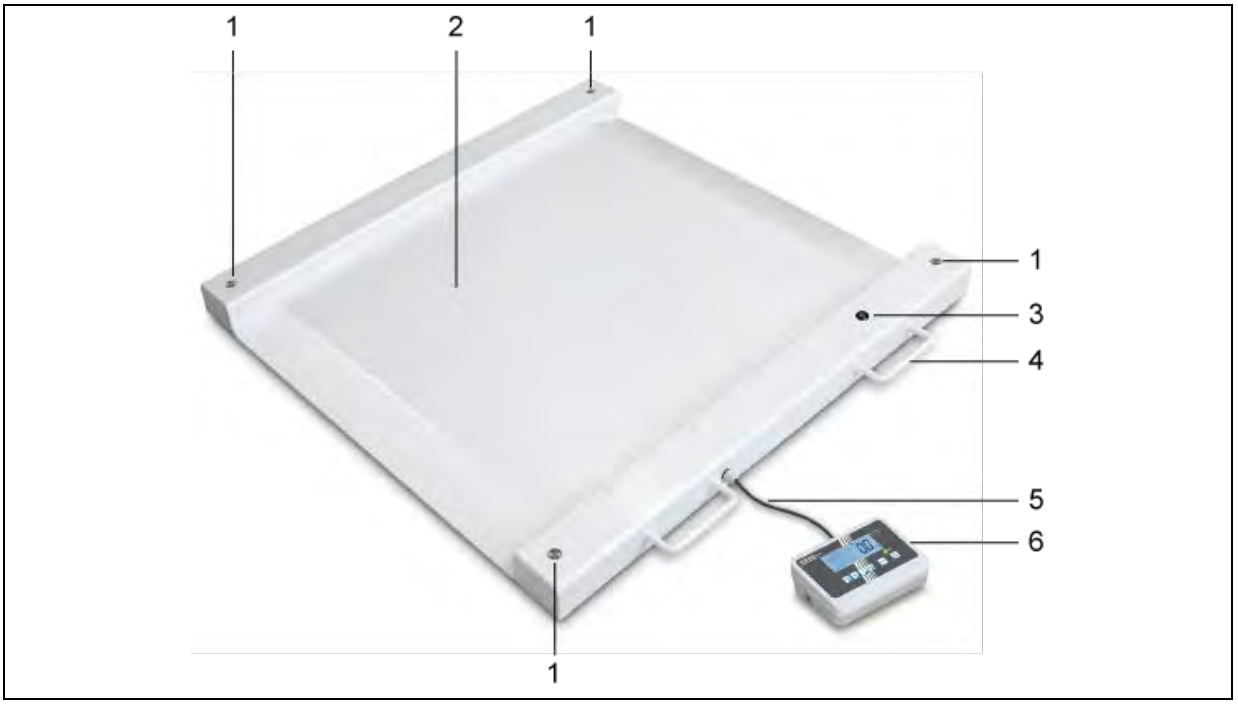
KERN	MWB 300K-1
Weighing range (max)	300 kg
Reproducibility	0.1 kg
Linearity ±	0.1 kg
Display	LCD with 25mm high digits
Recommended adjustment weight, (Class)	300 kg (M1)
Warm-up time	10 min
Operating temperature	-10° C …. + 40° C
Humidity of air	max. 80 % (not condensing)
Electric Supply	Battery; 6 x 1.5 V AA
Dimensions, completely assembled (W x D x H) mm	1050 x 1050 x 100
Weighing plate (w x d) mm	800 x 800
Weight kg (net)	38

2 Declaration of conformity

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

www.kern-sohn.com/ce

3 Appliance overview

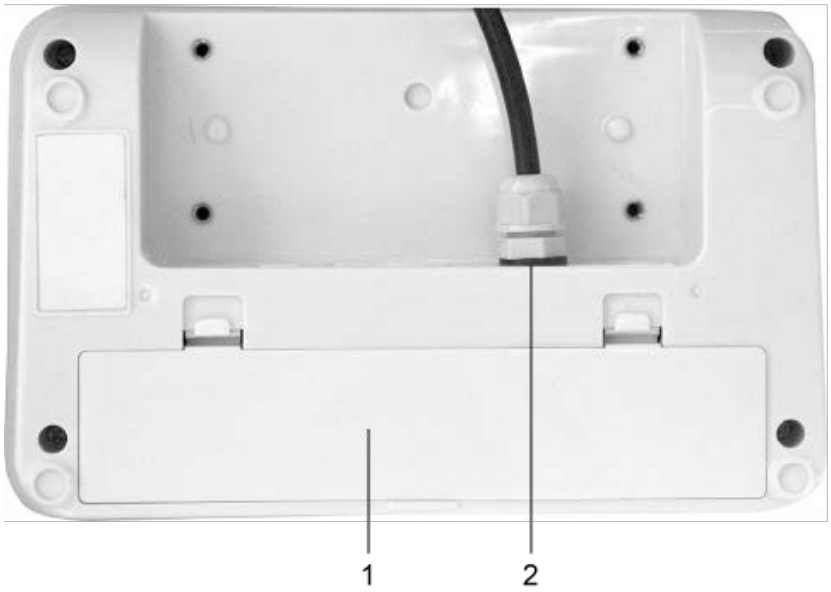


1. Cover of weighing cell feet
2. Weighing surface
3. Bubble level
4. Hand grip
5. Connection cable
6. Display Unit

	
Bubble level and handle (2x)	Conveyor roller (2x)

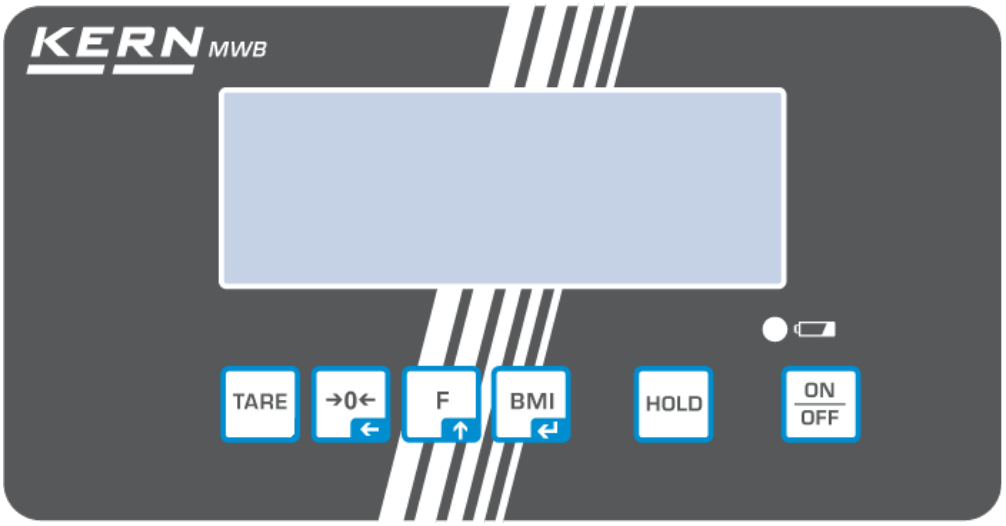
English

Display unit rear side



1	**2**
Battery compartment	Connecting cable display unit - platform

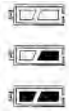
4 Keyboard overview



Button	Designation	Function
ON/OFF	ON/OFF button	Turn on/off
HOLD	HOLD button	Hold function/Calculation of a stable weight value
BMI	BMI key	Determination 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←	Zeroing key	Weighing scale will be reset to „0.0“ **For numeric entry:** • Change decimal place
TARE	TARE key	Tare balance **In menu:** • Back to menu and back to weighing mode

English

5 Overview of display

Display	Designation	Description
	Stability display	Scales are in a steady state
	Zeroing display	Should the balance not display exactly zero despite empty weighing plate, press the  button. Your balance will be set to zero after a short standby time.
NET	Net weight display	Illuminated when net weight is displayed Illuminated after weighing scale was tared
GROSS	Gross weight display	Illuminated when gross weight is displayed
HOLD	HOLD function	HOLD function active
BMI	BMI function	Illuminated while BMI function is enabled
	Battery display	Shows the capacity of the batteries

English

6 Basic instructions

6.1 Proper use

This weighing scale is designed for determining the weight of a person whilst standing or sitting.

On multifunctional weighing scales, the weighed person should carefully step onto the centre of the weighing platform and remain standing without moving. If weighed with a wheelchair, the wheelchair should remain in the centre of the weighing plate.

As soon as a stable weighing value is reached the weighing value can be read.
The weighing scale is designed for continuous duty.

6.2 Improper Use

Do not use these scales for dynamic weighing processes.
Do not leave permanent load on the weighing plate. 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 anesthetics 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.
The balance cannot be used to determine a body weight in practice of medicine.

6.3 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

6.4 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.

7 Basic Safety Precautions

7.1 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.	

8 Transport and storage

8.1 Testing upon acceptance

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

8.2 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 e.g. weighing platform against shifting and damage.

9 Unpacking, Setup and Commissioning

9.1 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. Change location or remove source of interference.

9.2 Unpacking

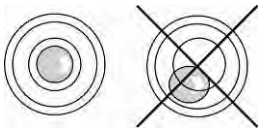
Remove the individual components of the balance or the complete balance from the packaging with care and install at the intended location. When using the power pack, ensure that the power cable does not produce a risk of stumbling.

9.3 Scope of delivery

Serial accessories:

- Balance
- 6 Batteries
- 4 Adjustment feet
- Operating manual

9.4 Balance assembly and installation



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

⇨ Check levelling regularly.

The balance is delivered for the use as a wheelchair weighing scale completely assembled.

English

9.5 Battery operation

As an alternative for the rechargeable battery operation, the balance offers also the possibility to be operated with 6x AA-batteries.
Open the battery cover (1) 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.11.6 Auto off).

 Capacity of batteries exhausted.

 Batteries will soon be flat.

 Batteries completely loaded

Insert batteries:

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

9.6 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.

10 Operation

10.1 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.

⇨ Have person stand in the centre of the scales. Wait until the standstill display „STABLE“ appears, then read the weighing result.

- If the person is heavier than the weighing range, "OL" (=overload) will appear in the display.

English

10.1.1 Weighing with wheelchair

⇨ Place wheelchair with person on the centre of the scales
⇨ Fasten the brakes of the wheelchair

⚠	Do not leave the person unattended

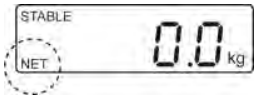
⇨ When the person sits quietly, read weighing value 1
⇨ Loosen the brakes and carefully pull off the transportation stretcher/wheelchair with the person
⇨ After that weigh the wheelchair without person and subduct this weight from weighing value 1, from there results the person's weight.

10.2 Taring

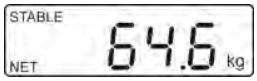
The tare weight of any preloads can be deducted by pressing a button so that the actual weight of the person is displayed in subsequent weighings.

(example)

⇨ Put object (such as towel, padding or empty wheel chair) on the weighing pan.



⇨ Press TARE, the zero display appears.
„NET" is shown at the bottom on the left.



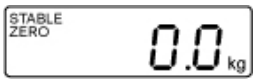
(example)

⇨ Allow the person to step onto the centre of the weighing platform.
Wait until the standstill display „STABLE" appears, then read the weighing result.

i	▪ When the balance is unloaded the saved taring value is displayed with negative sign. ▪ To delete the stored tare value, release scales and press TARE.

10.3 HOLD function

The balance has an integrated standstill function (mean value calculation). With this function it is possible to weigh people accurately even if they do not stand still on the weighing plate.

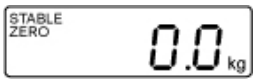


⇨ Start balance by pressing ON/OFF.
Wait for stability display „STABLE to appear.

(example)

⇨ Place person on the centre of the weighing platform and press HOLD. In the display appears "HOLD" and the weight of the person. The value is "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.

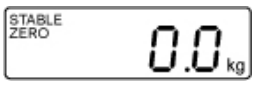


There is no average value calculation in the event of too much movement.

10.4 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.

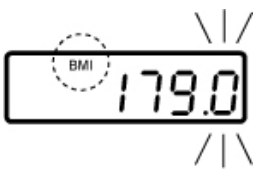
10.4.1 Calculating Body Mass Index



⇨ Start balance by ON/OFF

⇨ Wait for stability display „STABLE to appear.

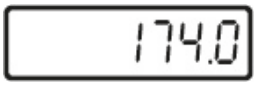
⇨ Allow the person to step onto the centre of the weighing platform.



⇨ Wait for stability display „STABLE to appear.

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

English



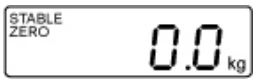
⇨ To enter body height, press the →0← and F key.

⇨ Confirm the value entered with BMI. The "BMI" symbol lights and the bargraph for BMI is displayed.

⇨ Wait for stability display „STABLE to appear.

⇨ Press BMI. The BMI value will be displayed.

⇨ Unload weighing plate



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

English

- 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, the display can be stabilised via the Hold function.

10.4.2 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.

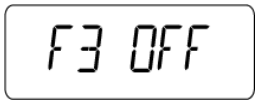
Categorie	**BMI (kg/m^2)**	**Risk of diseases associated with overweight**
Underweight	< 18.5	Low
Normal weight	18.5 – 24.9	Average
Overweight	≥ 25.0	
Pre-adipose	25.0 – 29.9	A bit high
Adipose degree I	30.0 – 34.9	Increased
Adipose degree II	35.0 – 39.9	High
Adipose degree III	≥ 40	Very high

10.5 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 plate is operated.

- Menu settings:
  [F3 oFF] ⇨ **[oFF 3/5/15]** (see chap. 11)

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



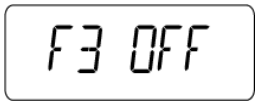
⇨ Press F repeatedly until **[F3 oFF]** is shown.

(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

[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.

English

11 Menu

11.1 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.

11.2 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
FS COM	not documented	

12 Error messages

Display	Description
Err4	**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
Err6	**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.

English

13 Servicing, maintenance, disposal

13.1 Cleaning

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

13.2 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.

13.3 Servicing, maintenance

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

13.4 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.

14 Instant help

In case of an error in the program process, briefly turn off the balance and disconnect from power supply. The weighing process must then be restarted from the beginning.

Fault	Possible cause
The displayed weight does not glow.	• The balance is not switched on.
	• The mains supply connection has been interrupted (mains cable not plugged in/faulty).
	• Power supply interrupted.
	• Rechargeable battery inserted incorrectly or empty
	• No rechargeable battery inserted

The displayed weight is permanently changing	• Draught/air movement • Table/floor vibrations • The weighing plate 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. • Warm-up time was ignored. • 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.

15 Adjustment

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

i	• 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 chap. 1.

Procedure:

F0 CAL	⇨ Switch-on balance by ON/OFF and during the selftest press F. **[F0 CAL]** is displayed.
CAL	⇨ Press BMI, **[CAL]** will be displayed
ULOAD	⇨ Press BMI again, **[ULOAD]** will be displayed.
00200.0	⇨ 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.
------- F0 CAL	⇨ 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 the adjustment.

Tip:

If the adjustment value was not accepted, check the adjustable feet. No foot can touch the scales plate.

English