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# Operating instructions

## Personal scales

### KERN MPU

Version 1.1

01/2010

GB



MPU-BA-e-1011



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Version 1.1 01/2010

## Operating instructions for personal scales

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## 1 Technical Data

<b>KERN</b>	<b>MPU 250K100</b>
Readability (d)	100 g
Weighing range (max)	250 kg
Reproducibility	200 g
Linearity	200 g
Weighing Units	kg
Adjustment weight	200 kg
Height measurement (cm)	80 – 220
Height measurement tolerance	± 1 cm
Electric Supply	Supply voltage: 220V – 240 V AC 50 Hz
	Secondary voltage powerpack: 12 V 500 mA
Operating temperature	+ 5°C ... + 35°C
Humidity of air	max. 80 % (not condensing)
Dimensions fully mounted (W x D x H) mm	380 x 525 x 2400
Weighing surface	380 x 370 x 80
Weight kg (net)	15

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## 2 Appliance overview

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(For assembly see Section 7.1)



1. Ultrasonic sensor
2. Display
3. Keyboard (only for servicing purposes)
4. Connections
5. Rollers
6. Weighing plate
7. Adjustable feet

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### 3 Basic Information (General)

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#### **Intended use**

These balance is used to calculate the weight of people standing upright in the private sphere. Utilisation of this balance in the medical field is not permissible.

The person must step on the weighing plate for the weighing procedure. As soon as a stable weighing value is reached the weighing value can be read.

#### **Non-intended use**

Do not use balance for dynamic weighing. In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the "stability compensation" in the balance.

(Example: Slowly draining fluids from a container on the balance.)

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 balance, 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.

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.

**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

**Test device control**

In the framework of quality assurance the measuring-related 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](http://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.

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## 4 Basic Safety Precautions

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

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## 5 Transportation & Storage

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### Testing upon acceptance

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

### Packing/ 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.
- ⇒ Secure all parts e.g. powerpack against slipping and damage

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## 6 Unpacking, Setup and Commissioning

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### **Installation location, Deployment location**

The balance is 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
- Maintain a gap of 30 cm on all sides away from walls and other objects or obstacles.
- 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, vapors 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.

If electro-magnetic fields or static charge occur, or if the power supply is unstable major deviations on the display (incorrect weighing results) are possible. In that case, the location must be changed.

### **Unpacking**

Remove the individual components of the balance or the complete balance from the packaging with care and install at the intended location.

**Scope of supply**

- Scales  
(The top unit is packed and delivered separately from the bottom unit, see Fig. 1)
- Screws
- Interface cable
- Operating instructions

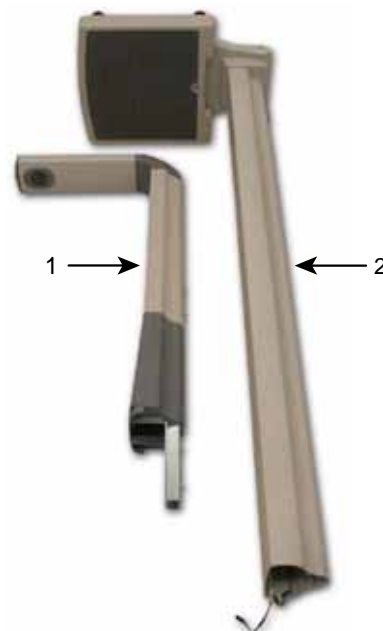


Fig. 1

1. Top unit
2. Bottom unit

**Placing**

- The assembled scales are **2.40 m high**.
- Maintain a gap of 30 cm on all sides away from walls and other objects or obstacles.

## 6.1 Installation

- ⇒ Place the bottom unit together with the weighing plate on the floor
- ⇒ Unscrew the 6 screws on the back of the top unit (Fig.2)
- ⇒ Open cover with care



Fig. 2



**CAUTION**

Ensure without fail that the existing cable connection to the keyboard is not disconnected.

- ⇒ Insert the top unit into the bottom unit
- ⇒ Insert the strut into the guide in the aluminium frame for this purpose.



Fig. 3



**CAUTION**

Ensure without fail that the cable for the measuring cell (LOAD CELL) and the cable for the interface and the power supply (COM.CONN) are not damaged.

- ⇒ Plug in the plug connector for the COM.CONN cable.
- ⇒ Plug in the plug connector for the LOAD CELL cable.

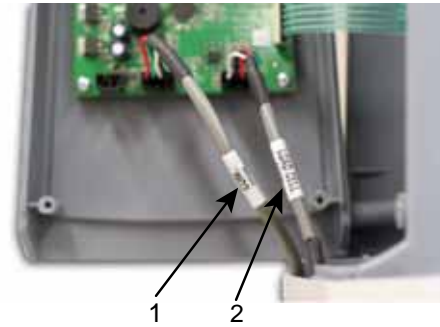


Fig. 4

1. COM.CONN  
(interface)
2. LOAD CELL  
(measuring cell)



**CAUTION**

Ensure correct allocation of plug connectors, as there is risk of confusion!

- ⇒ Close the display cover and tighten the 6 screws on the back (Fig.2). This fixes the cover in place.

- ⇒ Tighten 2 screws on the back of the bottom unit. (Fig.5)  
The top unit is now securely connected to the bottom unit.



Fig.5

## 7 Operation

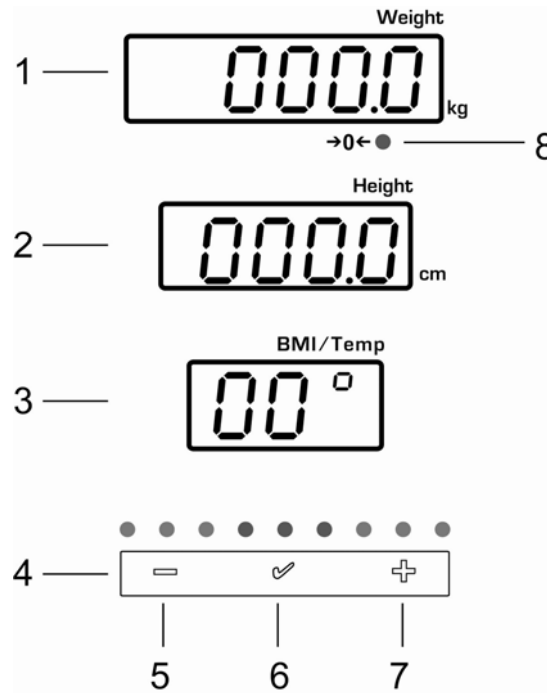
### Keyboard overview

(at the back)



exclusively for servicing purposes

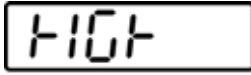
### Overview of displays



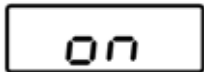
1. Weight value
2. Height data
3. BMI value/temperature
4. BMI ranges (see Chapter 9)
5. BMI value in the underweight range
6. BMI value in the normal weight range
7. BMI value in the overweight range
8. Zero display

**Commissioning** ⇒ Connect the scales to the power supply with the plug-in power pack.

⇒ The balance will carry out a self-test



If "HIGH ON" is displayed, the ultrasonic sensor is working properly







If "Step up" is displayed, the scales are now ready for operation.



(Example)

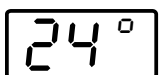
**Weighing**

- Stand upright in the centre of the scales without shoes
- Do not move during the measuring process (A signal will sound upon completion of the weighing procedure).
- Look towards the display



⇒ Have person stand in the centre of the scales.





63.5

⇒ Wait for signal and then read the results.  
Weight, height and BMI (See Chapter 9) will be displayed.

16 1.0

2 1.9



(Example)

The LED displays the corresponding BMI trend.



- The above results remain "frozen" for approx. 5 seconds after stepping off the scales.
- Further measurement can only be carried out after the weighing plate has been relieved.

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## 8 Adjustment

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As the acceleration value due to gravity is not the same at every location on earth, each balance 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 balance 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 balance periodically in weighing operation.

Use the adjustment weight (See chap: 1) to check and adjust the accuracy of the balance at any time.

### Adjustment procedure

Observe stable environmental conditions.

MENU

⇒ Press  :  
„Menu“ and „dAtA“ is displayed

dAtA

MENU

⇒ Press  repeatedly until „CAL“ appears


CAL

CAL 16



20.0


LOAD

⇒ Press  :  
“CALib” followed by the adjustment weight displayed as last appears. Furthermore „LOAD“ is displayed

0.0


LOAD

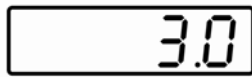
⇒ Change adjustment weight:  
Example: 30.0 kg:


Press  and keep pressed: Display goes to „0.0“.  
The adjustment weight is deleted.

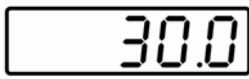
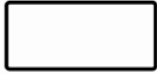
0.3


LOAD

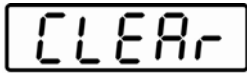
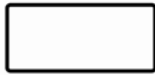
⇒ Press  and keep pressed: Enter the first digit of the weight value: „0.3“




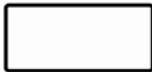
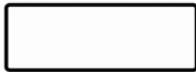
⇒ With double click on  shift decimal point to the left: „3.0“



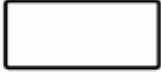
⇒ With an other double click on  shift decimal point to the left: „30.0“



⇒ Press  : „CLEAR“ appears



CLEAR



CAL 16


ZERO



30.0

PUT



⇒ Press  anew: The light emitting diode flashes for a short time, "CALiB" and „ZERO“ appear briefly, after that appears the entered adjustment weight „30.0“ and „PUT“

⇒ Place the adjustment weight in the center of the weighing surface




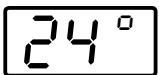
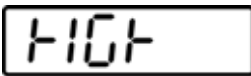
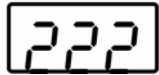
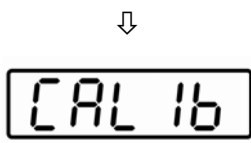
The set adjustment weight must also be placed upon


CAL 16

LOAD



⇒ Press  :  
"CALiB" and „LOAD“ appear. Moreover the light emitting diode flashes anew.  
After that „CALiB“ and „SAVE“ and „???“ are displayed



⇒ Save with  :  
"SAVED" appears.  
The adjustment is herewith concluded.  
The balance changes automatically into weighing mode:  
"HIGH ON" and „StEP UP“ is displayed.

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## 9 BMI trend display

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+	●	Above 30.0
	●	between 30.0 and 27.5
✓	●	between 27.5 and 25.0
	●	between 25.0 and 22.8
	●	between 22.8 and 20.6
-	●	between 20.6 and 18.5
	●	between 18.5 and 17.5
	●	between 17.5 and 16.5
	●	below or equal to 16.5



These figures are only guide values.  
There may be slight variations depending on age and sex.

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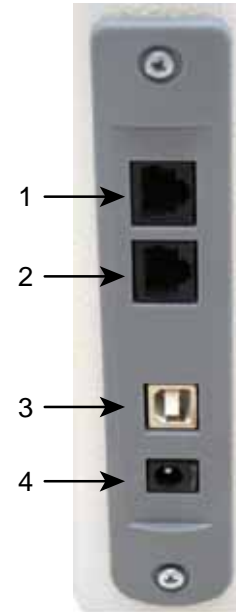
## 10 Data output

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The balance is typically equipped with a RS 232C interface.

### Connections

1. Serial interface
2. Serial interface
3. Not available
4. Connection for plug-in power pack



### Interface parameters

- Baud rate 9600
- Data Bit : 8
- Parity: None

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## 11 Printer mode

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The following conditions must be met to provide successful communication between the weighing balance and the printer.

- Correct operation is only guaranteed with the KERN interface cable included in the scope of supply.
- Communication parameters (Baud rate, bits and parity) need to be set on the connected devices as specified in Chapter 10: Interface parameters.

### 11.1 Printout example

Standard printout “weighing data“

87.4 kg

188.0 cm

24,7 BMI

### 11.2 Setting automatic printed edition

MENU


DATA

DATA

AUTO

ON


⇒ Press  :  
„Menu“ and „dAtA“ is displayed

⇒ Press  anew:  
“dAtA“ and „AUto“ „oFF or on“ are displayed

DATA

AUTO


ON

⇒ Use  to change between „on“ and „oFF“:  
Set „on“

DATA

USER


OFF

⇒ Press  :  
“data“ and „User on“ or „off“ will appear


DATA

USER

OFF


⇒ Use  to change between „on“ and „oFF“:  
Set „oFF“

SAVE

⇒ Acknowledge by  .  
“SAVE“ is displayed

DONE



⇒ Confirm anew by pressing  .  
“done“ is shortly displayed, followed by „High on“ and „Step up“.

HIGH

on



STEP

UP

24°


Now the automatic printed edition is adjusted.  
The weighing values are printed out automatically.

### 11.3 Setting manual data output

Carry out the following adjustments as in 11.2:

⇒ „Data Auto off“

⇒ „Data User on“

⇒ By pressing the  key the weighing values are printed out.

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## 12 Error messages

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- „no LC“
  - An incorrect power pack has been connected.
- „HIGH OFF“
  - Height measurement and BMI measurement do not work.
  - The temperature display goes to "99"

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## 13 Service, maintenance, disposal

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**Cleaning** Please do not use aggressive detergents (solvents etc.). Apply soapy water to moist cloth or use household detergent. Prevent fluid from penetrating into device. Finish by polishing with dry soft cloth. Remove dirt immediately.

**Service, maintenance** The appliance may only be opened by trained service technicians who are authorized by KERN.

**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.

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## 14 Instant help

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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 cause:

The displayed weight does not glow.

- The balance is not switched on.

The weighing result is obviously incorrect

- 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 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)
- A gap of 30 cm on all sides away from walls and other objects or obstacles has not been maintained.

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