

## 1 Technical data

| KERN           | 20K10 | 20K50 | 50K20 | 50K100 |
|----------------|-------|-------|-------|--------|
| Readability    | 10 g  | 50 g  | 20 g  | 100 g  |
| Weighing range | 20 kg | 20 kg | 50 kg | 50kg   |

| KERN           | 99K50 | 100K200 | 200K100 | 200K500 |
|----------------|-------|---------|---------|---------|
| Readability    | 50 g  | 200 g   | 100 g   | 500 g   |
| Weighing range | 99 kg | 100 kg  | 200 kg  | 200 kg  |

## 2 Basic instructions

### 2.1 Proper use

The balance you purchased is intended to determine the weighing value of material to be weighed. It is intended to be used as a "non-automatic" balance, i.e. the material to be weighed is manually and carefully suspended. As soon as a stable weighing value is reached the weighing value can be read.

### 2.2 Improper Use

Do not use balance for dynamic weighings. 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 suspended on the balance.) No permanent load must remain on the balance. 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. Balance may be damaged by this (danger of breaking).

### Caution:

- ⇒ Make sure that never persons or objects are under the load which could be injured or damaged!
- ⇒ The balance is not suitable for weighing persons!
- ⇒ The balance does not correspond to the law of medical products (MPG).

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.

### 2.3 Warranty

Warranty claims shall be voided in case

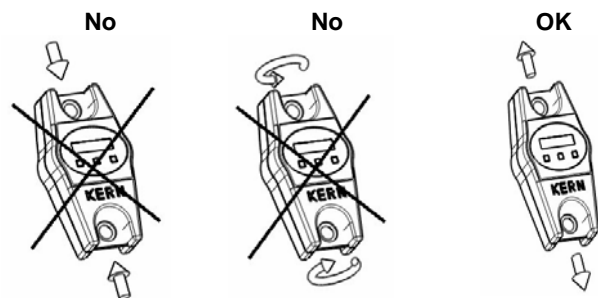
- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened, mechanical damage and damage caused by media, liquids
- Natural wear and tear
- The appliance is improperly set up or incorrectly electrically connected
- The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

### 2.4 Monitoring of Test Resources

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.

## 3 Basic Safety Precautions

- ⇒ Do not use the suspended balance for conveying loads
- ⇒ Never exceed the maximum permitted load (!!Danger of breaking!!).
- ⇒ Always ensure that there are **no persons, animals or objects** that might be damaged underneath the load.
- ⇒ Avoid any kind of shock, torsion and oscillating (e.g. caused by inclined suspending)



**Do not use under pressure**

**Do not twist**

**Only apply under tensile force**

### 3.1 Pay attention to the instructions in the Operation Manual

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

### 3.2 Personnel training

The appliance may only be operated and maintained by trained personnel.

## 4 Transport and storage

### 4.1 Testing upon acceptance

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

### 4.2 Packaging

Keep all parts of the original packaging in case you need to return the appliance.

Only use original packaging for returning.

## 5 Unpacking, Setup and Commissioning

### 5.1 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.

**Therefore, observe the following for the installation site:**

- Avoid extreme heat as well as temperature fluctuation caused by using 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 appliance for ca. 2 hours at room temperature.
- Avoid static charging of the material to be weighed, weighing container and windshield.

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.

### 5.2 Unpacking

Take the balance carefully out of the package and remove the plastic cover.

### 5.3 Scope of delivery

- Suspended balance
- Batteries
- Operating Manual

### 5.4 Battery operation

Push out the battery cover on the balance backside. Insert 3 AA batteries. Reinsert the battery cover. If the batteries are empty, in the balance display appears "LO". Press **ON/OFF**-key and replace the batteries immediately. In order to save the battery, the balance switches automatically off after 4 minutes without weighing. Deactivate this Auto-OFF function in the menu as follows:

### 5.5 The menu

- ⇒ When the balance is switched off, press the **HOLD**-key and keep it pressed
- ⇒ Do not release the **HOLD**-key. Press also the **ON/OFF/TARE**-key and keep it pressed
- ⇒ Keep the **ON/OFF/TARE**-key pressed, however release the **HOLD**-key
- ⇒ Press **HOLD**-key anew
- ⇒ Keep both keys pressed until in the display "tr" appears

⇒ Release both keys. The balance is situated in the menu.

⇒ Using the **ON/OFF/TARE** button you can select between the following functions:

- **tr** (zero tracking) : **ON/OFF**
- **AF** (Auto off): **ON/OFF**
- **rST** (Reset to factory setting): **YES/NO**

⇒ Confirm with **HOLD**-key

⇒ In the display appears the current setting „**ON**“ or „**OFF**“ resp. „**YES**“ or „**NO**“. With help of the **ON/OFF/TARE**-key you can select between „**ON**“ or „**OFF**“ resp. „**YES**“ or „**NO**“. Confirm your selection with the **HOLD**-key. After a short period the balance returns automatically to weighing mode.

## 6 Adjustment

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 during the initial start-up, after change in location and variation of surrounding temperature. To receive accurate measuring values it is also recommended to adjust the balance periodically in weighing operation.

### 6.1 Adjustment

With an adjustment weight, the weighing accuracy can be checked and re-adjusted at any time.

Procedure when adjusting:

Observe stable environmental conditions. A short warming up time of ca. 1 minute is recommended for stabilization. Switch on balance Press the **Unit**-key and keep it pressed (approx. 3 sec), in the display first appears shortly „**CAL**“, after that there appears the exact size of the adjustment weight. Suspend the adjustment weight, a short time later appears „**F**“, the balance returns automatically to the weighing mode.

In case of an adjustment error or incorrect adjusting weight the display will show "E"; repeat adjustment process.

| <b>KERN</b>                   | <b>20K10</b> | <b>20K50</b> | <b>50K20</b> | <b>50K100</b> |
|-------------------------------|--------------|--------------|--------------|---------------|
| Adjustment weight (not added) | 10 kg (M3)   | 10 kg (M3)   | 20 kg (M3)   | 20 kg (M3)    |

| <b>KERN</b>                   | <b>99K50</b> | <b>100K200</b> | <b>200K100</b> | <b>200K500</b> |
|-------------------------------|--------------|----------------|----------------|----------------|
| Adjustment weight (not added) | 50 kg (M3)   | 50 kg (M3)     | 100 kg (M3)    | 100 kg (M3)    |

## 7 Operation

### 7.1 Weighing

- The balance is switched on by pressing the „**ON/OFF/TARE**“ key.
- The balance displays „**0.0**“.
- Suspend material to be weighed.
- The weighing value appears in the display:
- If the material to be weighed is heavier than the weighing range, the display will show "E" (=Overload).
- The balance is switched off by pressing the „**ON/OFF**“ key a longer time.

## 7.2 Weighing units switch-over

Using the **Unit**-key you can switch over the display between **N**, **lb** and **kg**. The **▶** marks the active setting.

## 7.3 Taring

- Switch on the balance using the **ON/OFF/TARE**-key and wait for the „0“ display. Suspend the tare load and press the **ON/OFF/TARE** -key.
- The balance display jumps to „0.0“. The weight of the tare load is internally stored. The material to be weighed can now be filled in the tare vessel and the weighing value can be read.

## 7.4 Functions

With help of the **Hold**-key the following functions can be activated:

| Setting | Function  |
|---------|---|
| H1      | Data-Hold function 1<br>Weighing value frozen for 5 sec. after pressing the <b>Hold</b> -key                                  |
| H2      | Data-Hold function 2<br>The weighing value will be frozen after pressing the <b>Hold</b> -key until another key is actuated   |
| H3      | Data-Hold function 3<br>The weighing value is automatically frozen for 5 sec.   |
| H4      | Data-Hold function 4<br>The weighing value is automatically frozen after reaching a stable value until a key will be actuated |
| H5      | Animal weighing function  |
| H6      | Peak value function   |

### 7.4.1 Data-Hold function

With the Data-Hold function the weighing values in the display can be fixly displayed for a longer time. According to the using range you can select between 4 settings (H1 – H4).

- ⇒ Switch on the balance, keep the **HOLD**-key pressed until the current setting „Hx“ (H1 – H6) appears.
- ⇒ Actuate the **ON/OFF/TARE**-key until the desired setting (H1-H4) appears.
- ⇒ Use the **HOLD**-key to confirm your selection
- ⇒ Suspend the material to be weighed
- ⇒ The weighing value is displayed depending on your settings (H1 – H4) (see table chap. 7.4), symbolised by the **[▲]** top left.

### 7.4.2 Animal weighing function

This function is suitable for busy weighing procedures. The result is a mean value formed by 16 weighing values which is found out within 3 seconds.

- ⇒ Switch on the balance, keep the **HOLD**-key pressed until the current setting „Hx“ (H1 – H6) appears.
- ⇒ Press the **ON/OFF/TARE**-key until „H5“ appears.
- ⇒ Use the **HOLD**-key to confirm your selection
- ⇒ Suspend the material to be weighed
- ⇒ Press the **HOLD**-key, the display counts reverse from 3 -1. The calculated mean value is indicated, symbolised by the **[▲]** top left.
- ⇒ For further measurements press the **ON/OFF/TARE**-key before

### 7.4.3 Peak value function

This function displays the highest load value (peak value) of a weighing.

Measuring frequency: 200ms

## Caution:



Never exceed the maximum permitted load of the peak value on the balance (!!Danger of breaking!!).

- ⇒ Switch on the balance, keep the **HOLD**-key pressed until the current setting „Hx“ (H1 – H6) appears.
- ⇒ Press the **ON/OFF/TARE**-key until „H6“ appears.
- ⇒ Use the **HOLD**-key to confirm your selection
- ⇒ Suspend the material to be weighed
- ⇒ The peak value appears for a short time, symbolised by the **[▲]** top left. The balance returns automatically to zero and is ready for further measurement.

## 8 Service, maintenance, disposal

### 8.1 Cleaning

Please do not use aggressive cleaning agents (solvents or similar agents), but a cloth dampened with mild soap suds. Ensure that no liquid penetrates into the device and wipe with a dry soft cloth.

### 8.2 Service, maintenance

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

### 8.3 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.

## 9 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.

### Fault

### Possible cause

- |   |   |
|---|---|
| <i>Display weight does not glow.</i>            | <ul style="list-style-type: none"> <li>• The balance is not switched on.</li> <li>• Batteries are inserted incorrectly or empty</li> <li>• No batteries inserted.</li> </ul>  |
| <i>Displayed weight is permanently changing</i> | <ul style="list-style-type: none"> <li>• Draught/air movement</li> <li>• Vibrations on the suspension of the balance</li> <li>• Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)</li> </ul>             |
| <i>Weighing result obviously incorrect</i>      | <ul style="list-style-type: none"> <li>• The display of the balance is not at zero</li> <li>• Great fluctuations in temperature.</li> <li>• Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)</li> </ul> |

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