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# Operating instruction Compact balance

## KERN GAB/GAS/FAB

Version 2.0

01/2007

GB



GAB/GAS/FAB-BA-e-0720



# KERN GAB/GAS/FAB

Version 2.0 01/2007

## Operating instruction Compact Balance

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## 1 Technical data

<b>KERN</b>	<b>GAB 3K1DM</b>	<b>GAB 6K2DM</b>	<b>GAB 15K5DM</b>	<b>GAB 30K10DM</b>
<i>Readability / calibration value</i>	1 g / 2 g	2 g / 5 g	5 g / 10 g	10 g / 20 g
<i>Weighing range</i>	1.5 kg / 3 kg	3 kg / 6 kg	7.5 kg / 15 kg	15 kg / 30 kg
<i>Warm-up time</i>	10 minutes	10 minutes	10 minutes	10 minutes
<i>Recommended adjustment weight incl. category</i>	3 kg (M3)	6 kg (M3)	15 kg (M3)	30 kg (M3)
<i>Operating temperature</i>	- 5° C .... + 40° C			
<i>Humidity of air</i>	max. 80 % (not condensing)			
<i>Housing (B x D x H) mm</i>	236 x 282 x 102 - 108		286 x 363 x 102 - 124	
<i>Weighing plate (w x d) mm</i>	230 x 180		280 x 260	
<i>Weight kg (net)</i>	2		3,2	

<b>KERN</b>	<b>GAS 3K1DM</b>	<b>GAS 6K2DM</b>	<b>GAS 15K5DM</b>	<b>GAS 30K10DM</b>
<i>Readability / calibration value</i>	1 g / 2 g	2 g / 5 g	5 g / 10 g	10 g / 20 g
<i>Weighing range</i>	1.5 kg / 3 kg	3 kg / 6 kg	7.5 kg / 15 kg	15 kg / 30 kg
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<i>Housing (B x D x H) mm</i>	236 x 282 x 102 - 108		286 x 363 x 102 - 124	
<i>Weighing plate (w x d) mm</i>	230 x 180		280 x 260	
<i>Weight kg (net)</i>	2		3,2	
<i>Reverse display</i>	yes		yes	

<b>KERN</b>	<b>FAB 3K1DIPM</b>	<b>FAB 6K2DIPM</b>	<b>FAB 15K5DIPM</b>
<i>Readability / calibration value</i>	1 g / 2 g	2 g / 5 g	5 g / 10 g
<i>Weighing range</i>	1.5 kg / 3 kg	3 kg / 6 kg	7.5 kg / 15 kg
<i>Warm-up time</i>	10 minutes	10 minutes	10 minutes
<i>Recommended adjustment weight incl. category</i>	3 kg (M3)	6 kg (M3)	15 kg (M3)
<i>Operating temperature</i>	- 5° C .... + 40° C		
<i>Humidity of air</i>	max. 95 % (not condensing)		
<i>Housing (B x D x H) mm</i>	260 x 320 x 130		
<i>Weighing plate (w x d) mm</i>	229 x 196		
<i>Weight kg (net)</i>	3,2		
<i>Protection classification IP 65</i>	Yes, battery operation only		

## 2 Declaration of conformity



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### Declaration of conformity

**Declaration of conformity for apparatus with CE mark**

**Konformitätserklärung für Geräte mit CE-Zeichen**

**Déclaration de conformité pour appareils portant la marque CE**

**Declaración de conformidad para aparatos con marca CE**

**Dichiarazione di conformità per apparecchi contrassegnati con la marcatura CE**

- English** We hereby declare that the product to which this declaration refers conforms to the following standards.
- Deutsch** Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.
- Français** Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.
- Español** Manifestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las normas siguientes
- Italiano** Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

### Electronic Scale: **KERN GAB, GAS, FAB**

Mark applied	EU Directive	Standards
	89/336/EEC EMC 73/23/EEC, 92/31/EEC, 93/68/EEC	EN 45501 EN 55011, Group 1, Class B EN 61000-3-3 : 1995 EN 60950

Date: 10.01.2007

Signature: 

Gottl. KERN & Sohn GmbH  
Management

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## Declarations of conformity

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- English** We hereby declare that the product to which this declaration refers conforms to the following standards.  
**This declaration is only valid with the certificate of conformity by a notified body.**
- Deutsch** Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.  
**Diese Erklärung gilt nur in Verbindung mit der Konformitätsbescheinigung einer benannten Stelle.**
- Français** Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.  
**Cette déclaration est valide seulement avec un certificat de conformité d'un organisme notifié.**
- Español** Manifestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las normas siguientes  
**Esta declaración solo será válida acompañada del certificado de conformidad de una institución nombrada.**
- Italiano** Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.  
**Questa dichiarazione sarà valida solo se accompagnata dal certificato di conformità di un ente riconosciuto.**

## Electronic Scale: KERN GAB, GAS, FAB

EU Directive	Standards	EC-type-approval certificate no.	Issued by
90/384/EEC, 93/68/EEC	EN 45501	T6171	NMI

Date: 10.01.2007

Signature:

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Management

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### **3 Basic Information (General)**

#### **3.1 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 placed in the centre of the weighing plate. As soon as a stable weighing value is reached the weighing value can be read.

#### **3.2 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 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. Balance may be damaged by this.

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.

#### **3.3 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



### **3.4 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.

## **4 Basic Safety Precautions**

### **4.1 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.

### **4.2 Personnel training**

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

## **5 Transport and storage**

### **5.1 Testing upon acceptance**

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

### **5.2 Packaging**

Keep all parts of the original packaging in case you need to return the appliance. Only use original packaging for returning.

Before sending, disconnect all connected cables and loose/movable parts. Secure all parts such as power packs etc. against dislocation and damage.

## 6 Unpacking, Setup and Commissioning

### 6.1 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:***

- Place the balance on a firm, level 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 charging of the material to be weighed, weighing container and windshield.

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.

## 6.2 Unpacking

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

### 6.2.1 Setup

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

### 6.2.2 Scope of delivery

**Serial accessories:**

<b>KERN GAB / GAS / FAB</b>
<ul style="list-style-type: none"><li>• <i>Balance</i></li><li>• <i>Operating Manual</i></li><li>• <i>Mains adapter</i></li></ul>

## 6.3 Mains supply or battery operation

Power is supplied via the external mains adapter. The stated voltage value must be the same as the local voltage.

Only use original KERN mains adapters. Using other makes requires consent by KERN.

Output voltage mains adaptor: 3.2 V to 6.0 V CD (polarity: inside PLUS)

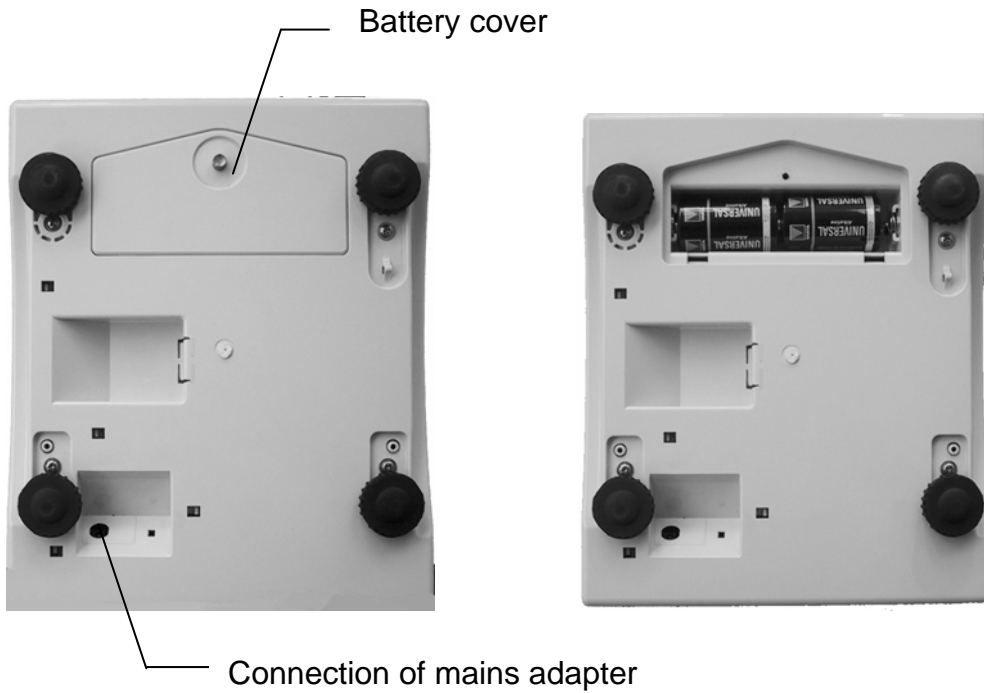
The balance switches off automatically according to the pre-defined disconnecting time. To achieve this, keep the **MODE** key pressed down for 6 seconds, then tap the **MODE** key repeatedly and store the selected disconnecting time by pressing the **TARE** key.

The following applies:

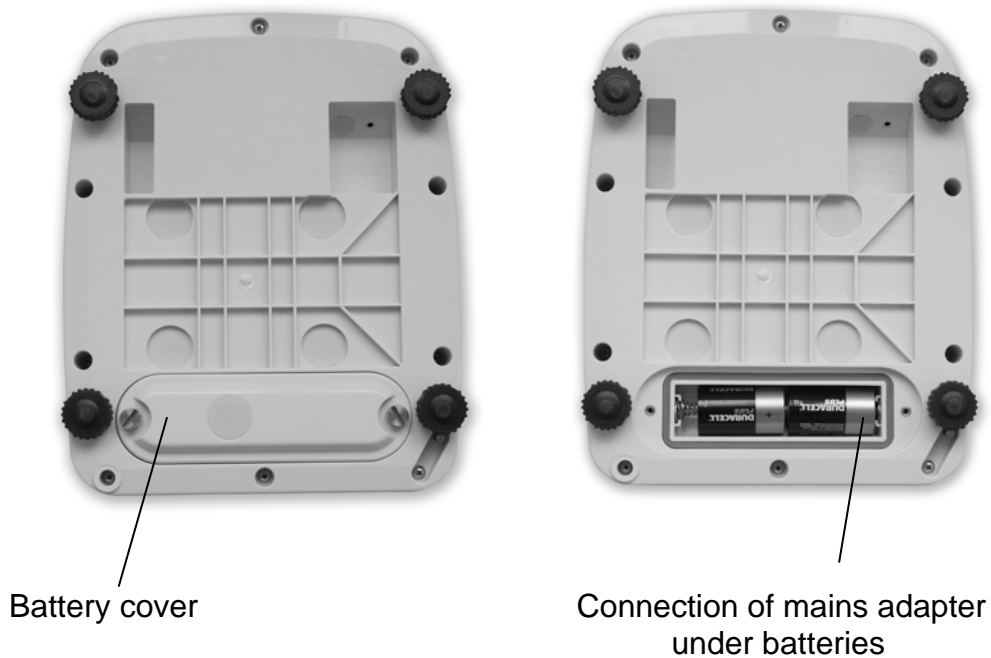
- **P 0:** Balance not turning off.
- **P 1:** Balance turning off automatically after 20 minutes
- **P 2:** Balance turning off automatically after 60 minutes


For battery operation unscrew the battery cover at the bottom. Insert two 1.5 V batteries (D type). Screw battery cover back on.

### Model GAB / GAS



### Model FAB



Empty batteries are indicated on the display by „ „. Press **ON/OFF**-key and replace the batteries immediately.

## **6.4 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).

The accuracy of the balance depends on the local acceleration of gravity. Strictly observe hints in chapter Adjustment.

## **6.5 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.

## **6.6 Adjusting**

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

### **Attention:**

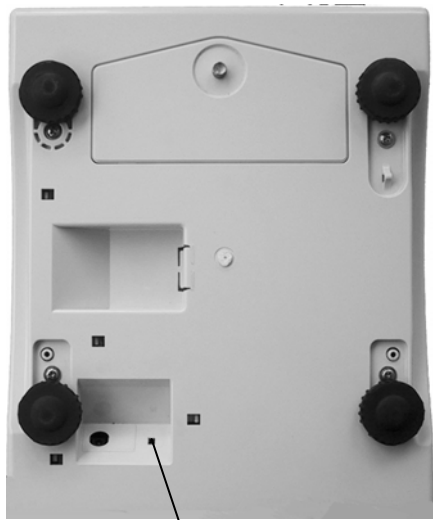
In the verified balances the adjustment is not possible.  
(see chapter 6.7 Verification).

### Procedure when adjusting:

Observe stable environmental conditions. A warming up time (see chapter 1) is required for stabilization.

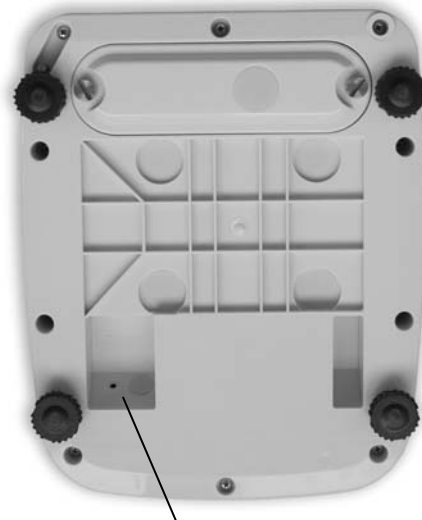
Operation	Display
Switch off the balance	
Press and hold the <b>TARE</b> key and operate the <b>ON/OFF</b> key.	<b>L003b</b>
Release the <b>TARE</b> key. If display message deviates from ( <b>C1 7</b> / see on right), this can be changed by pressing the <b>MODE</b> key. Afterwards press the <b>TARE</b> key.	<b>C1 7</b>
<b>XX</b> = model related display <b>41</b> = GAB / GAS 3K1DM / <b>42</b> = GAB / GAS 6K2DM <b>43</b> = GAB / GAS 15K5DM / <b>34</b> = GAB / GAS 30K10DM <b>41</b> = FAB 3K1DIPM / <b>42</b> = FAB 6K2DIPM <b>43</b> = FAB 15K5DIPM	<b>C2 XX</b>
Press the <b>TARE</b> key.	<b>C3</b>
Press <b>MODE</b> key (value should be between 1000 and 25000). Note: The display value is instable (extremely shock sensitive)	<b>13842</b>
Press <b>MODE</b> key → produces a value of c. 5000 (Ensure stable ambient conditions, do not load weighing plate)	<b>5,010 kg</b>
Press resetting key, if value deviates from 5000	<b>5,000 kg</b>
Place adjustment weight (See chpt. 1 technical specifications) carefully in the centre of the weighing plate, press <b>MODE</b> key. → a value of c. 35000 appears, if deviation is in excess of 5000, repeat sequence of operation. Note: The display value is instable (extremely shock sensitive)	<b>CAL kg</b>  <b>35,000 kg</b>
Remove adjustment weight, adjustment complete. Operate the adjustment switch at the bottom end of the balance (See picture below) → adjustment will be stored. Turn off balance by pressing the <b>ON/OFF</b> key.	<b>P-EP</b>

## Model GAB / GAS



Adjustment switch

## Model FAB



Adjustment switch

- The adjustment switch is positioned next to the front foot screw underneath the balance.
- Press a long blunt object (e.g. pencil lead) in the housing hole.

## 6.7 Verification

### General introduction:

According to EU directive 90/384/EEC balances must be officially verified if they are used as follows (legally controlled area):

- a) For commercial transactions if the price of goods is determined by weighing.
- b) For the production of medicines in pharmacies as well as for analyses in the medical and pharmaceutical laboratory.
- c) For official purposes
- d) For manufacturing final packages

In cases of doubt, please contact your local trade in standard.

### Verification instructions

An EU type approval exists for balances described in their technical data as verifiable. If a balance is used where obligation to verify exists as described above, it must officially verified and re-verified in regular intervals.

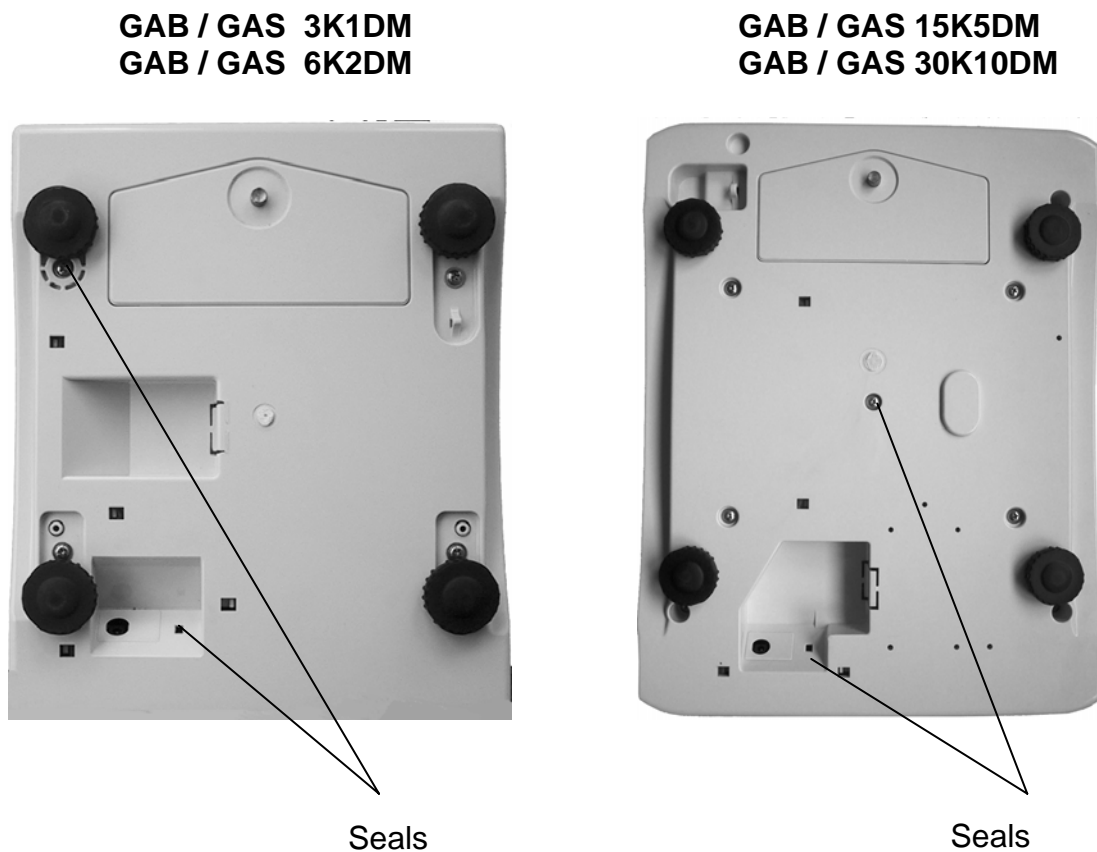
Re-verification of a balance is carried out according to the respective national regulations. The validity for verification of balances in Germany is e.g. 2 years.

The legal regulation of the country where the balance is used must be observed!

The adjustment switch is inside the balance. After verification the balance is sealed at the indicated positions.

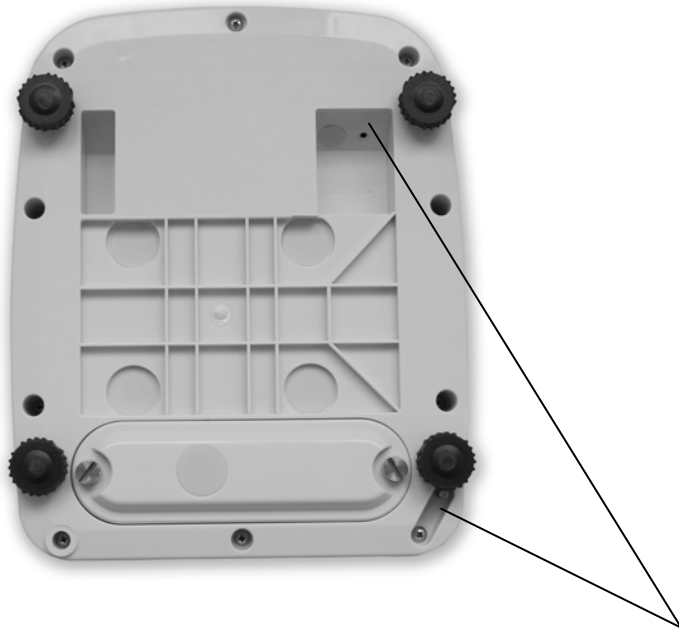
**Verification of the balance is invalid without the "seal".**

Position of the "official seals":





**FAB 3K1DIPM**  
**FAB 6K2DIPM**  
**FAB 15K5DIPM**



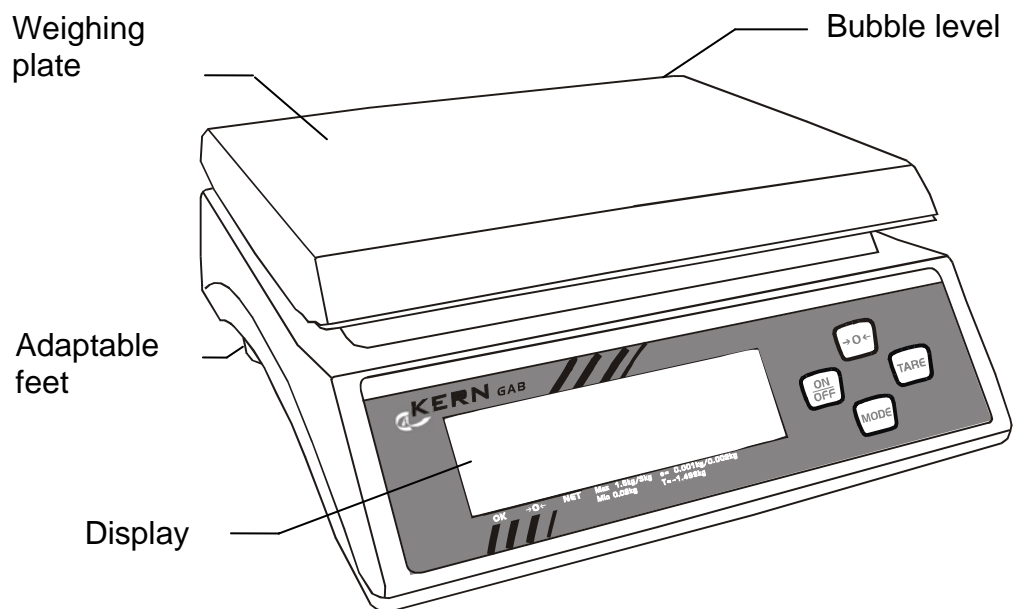
Seals

**Balances with obligation to verify must be taken out of operation if:**

- **The weighing result of the balance is outside the error limit.** Therefore load balance at regular intervals with known test weight and compare the display value.
- **The reverification deadline has been exceeded.**

## 7 Operation

### 7.1 Operating elements



Similar for models GAB/GAS / FAB

#### 7.1.1 Keyboard overview for both model ranges



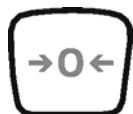
ON/OFF key



TARE key



Selection key / auto power function



Zeroing key

### 7.1.2 Display Overview GAB



**Stability display**  
Illuminated when display of weight value is stable indicated

**Zeroing display**  
Illuminated when display of weight is zero

**Net display**  
Illuminated when tare value is stored

### 7.1.3 Display Overview FAB



**Stability display**  
Illuminated when display of weight value is stable indicated

**Zeroing display**  
Illuminated when display of weight is zero

**Net display**  
Illuminated when tare value is stored

## 7.2 Operation

### 7.2.1 How to turn on/off balance

1. To turn on the balance press the **ON/OFF** key. The balance will carry out a self-test
2. The balance is ready for weighing when the weight display appears.
3. To turn the balance off, keep the **ON/OFF** key pressed down for 1-2 seconds.



### 7.2.2 Resetting balance to zero

Environmental influences can lead to the exact figure of “0.00” not being displayed in spite of an empty weighing dish. It is, however, possible to reset your balance to zero at any time and thus ensure that weighing really does commence at zero. Setting to zero when a weight is applied is only possible within a certain type-dependent range. In the event that the balance cannot be reset to zero with an applied weight, this range has been exceeded.

1. If the balance despite of uncharged weighing plate does not show exactly zero, press the **Reset** key.
2. Your balance will be set to zero after a short standby time.



### 7.2.3 Tare weighing (taring)

The dead weight of any weighing container can be tared off by pressing the button in order to ensure the net weight of the goods to be weighed in subsequent weighings is always displayed.

1. Place empty tare container on the weighing plate.  
The total weight of the container is displayed.



2. To tare, press the **TARE** key.
3. Zero will be displayed once taring is complete and the symbol **NET** for net weight will appear. The balance is now ready for operation.



Information:

The balance is able to only store one taring value at a time.

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

To delete the stored tare value, remove all items from the weighing plate and press then the **TARE** key.

## **8 Service, maintenance, disposal**

### **8.1 Cleaning**

Before cleaning, please disconnect the appliance from the operating voltage.

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.

Loose residue sample/powder can be removed carefully with a brush or manual vacuum cleaner.

**Spilled weighing goods must be removed immediately.**

### **8.2 Service, maintenance**

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

Before opening, disconnect from power supply.

### **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 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.

Help:

### **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.*
- *Batteries are inserted incorrectly or empty*
- *Maximum load for balance exceeded*

*The displayed weight is permanently changing*

-

- *Draught/air movement*
- *Table/floor vibrations*
- *The weighing plate is in contact with foreign matter.*
- *Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)*

*The weighing value is obviously wrong*

- *The display of the balance is not at zero*
- *Adjustment is no longer correct.*
- *Great fluctuations in temperature.*
- *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.