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Operating instructions
Compact balance

KERN FFN

Version 1.0
11/2009
GB

FFN-BA-e-0910

GB

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Version 1.0 11/2009

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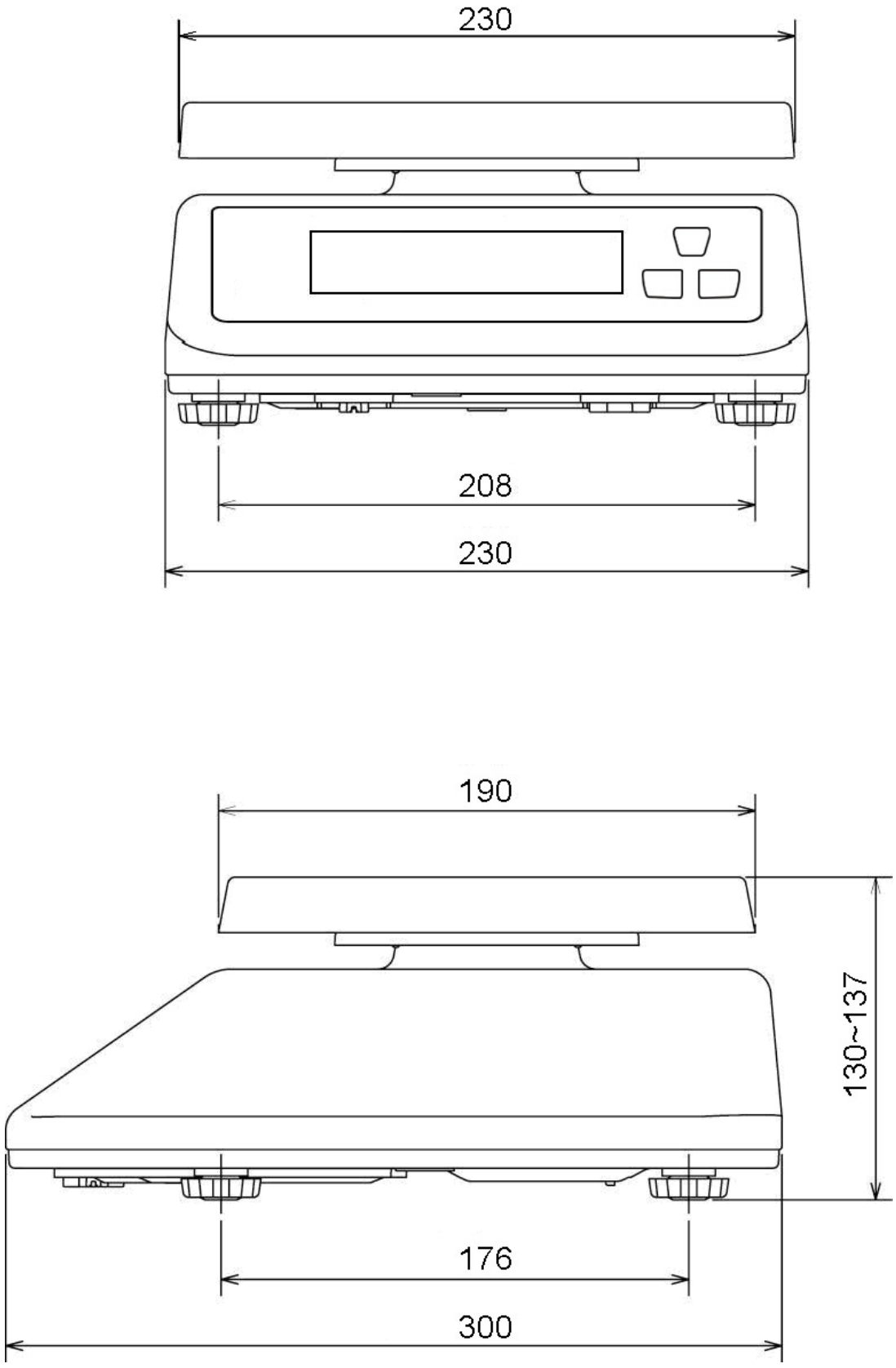
Compact balance

1 Technical Data

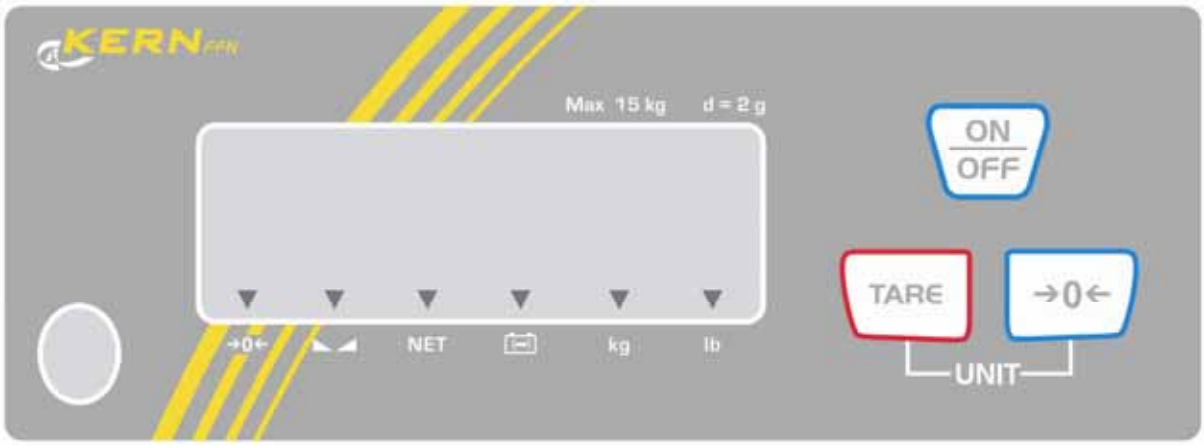
KERN	FFN 3K0.5IP	FFN 6K1IP	FFN 15K2IP	FFN 25K5IP
Weighing range (max)	3 kg	6 kg	15 kg	25 kg
Readability (d)	0.5 g	1 g	2 g	5 g
Units	kg, lb			
Tare range	- 3 kg	- 6 kg	- 15 kg	- 25 kg
Reproducibility	0.5 g	1 g	2 g	5 g
Linearity	0.5 g	1 g	4 g	5 g
Stabilization time (typical)	2 sec.			
Warm-up time	30 min.			
Recommended adjustment weight, not added (class)	3 kg (M3)	6 kg (M3)	15 kg (M3)	25 kg (M3)
Battery operation	4 x 1.5 V size D Operating period: 1 year			
Auto-off (battery)	15 min., 5 min., 3 min., off			
Display mode	LCD, digit size 25 mm			
Operating temperature	0° C …. + 40° C			
Humidity of air	25 % - 95 % (non-condensing)			
Weighing plate dimensions (stainless steel) (mm)	230 x 190			
Casing dimensions	230 x 300 x 130			
Total dimensions mounted (mm)	230 x 300 x 130			
Weight kg (net)	3.2			
IP protection	IP67			

1.1 Dimensions



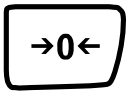
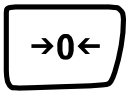
2 Appliance Overview

2.1 Overview of displays



Display	Designation	Description
→0←	Zeroing display	Should the balance not display exactly zero despite empty scale pan, press the →0← button. Will be reset to zero after short waiting time.
◣◢	Stability display	Scales are in a steady state
NET	Net weight display	Net weight will be displayed
⊟	Capacity display Battery	Batteries low, please replace
kg	Display weighing unit kg	Displayed weight in kg
lb	Display weighing unit lb	Displayed weight in lb

2.2 Keyboard Overview

Button	Designation	Function
	ON/OFF-switch	Turn on/off
	TARE button	Tare balance
	Zero setting key	Balance set at zero
 + 	TARE + UNIT-key	Change units

3 Basic Information

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 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. 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 or damage 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 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 oft 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 Transportation & 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 / 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 such as glass wind screen, weighing platform, power unit etc. against shifting 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.

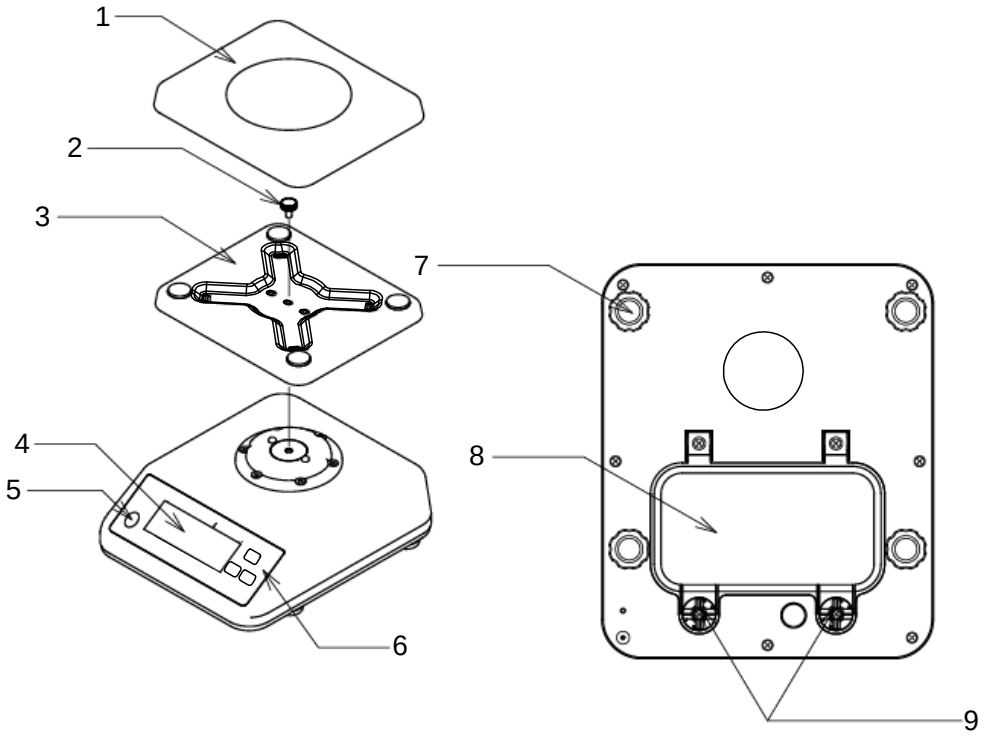
Therefore, observe the following for the installation site:

- Place 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, 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 goods to be weighed or weighing container.

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 and implantation

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



1 Weighing plate

2 Locking screw

3 Carrier weighing plate

4 Display

5 Bubble level

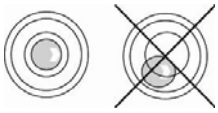
6 Keyboard

7 Footscrews

8 Battery cover

9 Screws for battery cover

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



6.2.1 Scope of supply
Serial accessories:

- Balance
- Operating instructions
- 4 batteries 1.5 V size D

6.3 Battery operation

- ⇨ Remove any adherent moisture
- ⇨ Turn both levers anti-clockwise by 90°
- ⇨ Fold up battery cover
- ⇨ Insert batteries
- ⇨ Close the battery cover
- ⇨ Turn both levers clockwise by 90°, thereby closing the battery compartment tightly

Avoid excess pressure on the balance in order to avoid damaging them, particularly as they are supported by the weighing plate.

Low batteries are indicated by the appearance of a triangle ▼ above the battery icon on the display. Change the batteries as described above.

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).
The weighing scale must be connected to the power supply (batteries) during this warm-up time.
The accuracy of the balance depends on the local acceleration of gravity.
Strictly observe hints in chapter Adjustment.

6.5 Protection type IP-67

Dust and spray water protection:
The KERN FFN is in compliance with the requirements set for **protection type IP67**.
Suitable for short-term use in wet areas Dustproof.

7 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 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.

7.1 Adjustment

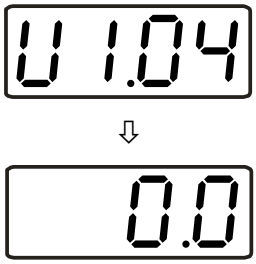
Carry out adjustment as near as possible to the maximum load of the scale (See chpt. 1 “Techn. data”). The accuracy of the weight used for adjustment has to correspond approximately to readability **d** of the scale, or rather closer than that. Info about test weights can be found on the Internet at: http://www.kern-sohn.com

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

Display	Operation
	⇨ Start balance by pressing ON/OFF ⇨ Whilst the weighing scale is carrying out a self-test, (00…- 99…) press TARE and hold until the message “F1 CAL“ appears.
	⇨ Press →0←, in the display appears „UnLod“.
 (Example)	⇨ Press →0← again the weight value will be displayed.
	⇨ Enter value for adjustment weight (See chpt 1) by TARE ⇨ Position weight
	⇨ Press →0← Remove weight whilst scale is carrying out self-test Weighing scale changes to zero display. This completes the adjustment process.
	

8 Operation

8.1 Weighing



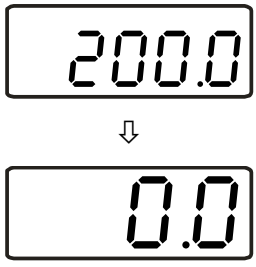
⇨ Start balance by pressing ON/OFF
Program version is displayed.
Afterwards the balance will carry out a self-test.
The balance will be ready for operation as soon as weight reading “0.0” and the triangular icon ▼ above the stability display ◣◢ appear.

ℹ	▪ The →0← key can be used to set the balance to zero at any time.

⇨ Turn off scale by pressing ON/OFF .
The “0.0” display disappears and the weighing scale is now switched off.

8.2 Taring

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



⇨ Put on weighing receptacles and press TARE .
The zero display appears as well as the triangle ▼ above the zero setting icon →0← as well as the stability icon ◣◢ and the net weight icon **NET** .
The weight of the container is now internally saved.

⇨ Place goods to be weighed in the weighing container.
The **net weight** of the goods to be weighed is displayed.

The weight of the weighing container will be displayed as a minus number after removing the weighing container (= gross weight).

The tare weight is saved until it is deleted. Remove the load from the balance and press TARE . The zero display appears and the triangle ▼ above the net weight icon **NET** disappears.

Gross weight:

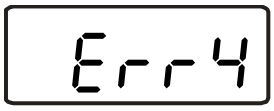
⇨ Press TARE as long as the weighing tray and the load are present on the weighing platform.

⇨ Remove weighing goods and receptacle
Gross weight will be shown as a negative value.

8.3 Weighing units switch-over

⇨ Press TARE and →0← at the same time.
The weighing scale switches between the kg and lb units.

9 Error messages

Display	Description
	Zero range exceeded
	Electronic error

10 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. ▪ Batteries are inserted incorrectly or empty ▪ No batteries inserted.
The displayed weight is permanently changing -	▪ Draught/air movement ▪ Table/floor vibrations ▪ Weighing plate has contact with other objects. ▪ 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. ▪ 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.

11 Service, maintenance, disposal

11.1 Cleaning

Remove batteries from instrument before 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.
Loose residue sample/powder can be removed carefully with a brush or manual vacuum cleaner.

Spilled weighing goods must be removed immediately.

11.2 Service, maintenance

The appliance may only be opened by trained service technicians who are authorized by KERN.
Before opening, disconnect from power supply.

11.3 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.