KERN & Sohn GmbH
Ziegelei 1
D-72336 Balingen
E-Mail: info@kern-sohn.com
Phone: +49-[0]7433- 9933-0
Fax: +49-[0]7433-9933-149
Internet: www.kern-sohn.com

Operating manual
Precision balances

KERN PFB
Type PFB_A

Version 4.1
2017-10
GB

PFB-BA-e-1741

GB

KERN PFB

Type PFB_A Version 4.1 2017-10

Operating manual

Precision balance

English

Contents

1 Technical data 4

2 Declaration of conformity 7

3 Appliance overview 8

3.1 Keyboard overview 8

3.2 Overview of display 9

4 Basic Information (General) 10

4.1 Proper use 10

4.2 Improper Use 10

4.3 Warranty 10

4.4 Monitoring of Test Resources 11

5 Basic Safety Precautions 11

5.1 Pay attention to the instructions in the Operation Manual 11

5.2 Personnel training 11

6 Transport and storage 11

6.1 Testing upon acceptance 11

6.2 Packaging / return transport 11

7 Unpacking, Setup and Commissioning 12

7.1 Installation Site, Location of Use 12

7.2 Unpacking and checking 12

7.2.1 Placing 13

7.3 Mains connection 14

7.4 Connecting to power supply 14

7.5 Connection of peripheral devices 14

7.6 Adjustment 15

7.7 Linearization 16

8 Basic Operation 19

8.1 Start-up 19

8.2 Switching Off 19

8.3 Zeroing 19

8.5 Switch-over weighing unit 20

9 Applications 22

9.1 Percent determination 22

9.2 Parts counting 23

9.3 Totalization 24

9.3.1 Manual totalizing 24

9.3.2 Automatic adding-up 27

10 Menu 29
10.1 Navigation in the menu 29
10.2 Access to technology menu 30
10.3 Overview 31
11 Interfaces 33
11.1 RS232 33
11.1.1 Technical data 33
11.1.2 Printer operation (RS 232) 34
11.1.3 Output log (continuous output) 35
11.2 Remote control instructions 35
11.3 Bluetooth (Factory option) 36
11.3.1 Add device 36
11.3.2 Determine COM Port number 38
12 Servicing, maintenance, disposal 39
12.1 Cleaning 39
12.2 Servicing, maintenance 39
12.3 Disposal 39
13 Error messages 39
14 Instant help 40

English

1 Technical data

KERN (Type)	PFB 120-3A	PFB 200-3A	PFB 300-3A
Trademark	PFB 120-3	PFB 200-3	PFB 300-3
Readability (d)	0,001 g	0,001 g	0,001 g
Weighing range (max)	120 g	200 g	300 g
Reproducibility	0,001 g	0,002 g	0,002g
Linearity	±0,003 g	±0,005 g	±0,005 g
Smallest part weight for piece counting	2 mg	2 mg	2 mg
Reference quantities at piece counting	10, 20, 50, 100, 200		
Weighing Units	g, ct, lb, oz, d, ozt, dwt, mo, tl h, tl c, tl t, t, bt, n		
Recommended adjustment weight, not added (class)	100 g (F1)	200 g (F1)	300 g (F1)
Warm-up time	2 hours		
Stabilization time (typical)	3 sec.		
Operating temperature	+ 15° C .... + 35° C		
Humidity of air	max. 80 % (not condensing)		
Housing (B x D x H) mm	315 x 210 x 156		
Dimensions of wind screen (B x D x H) mm	124 x 119 x 80		
Weighing plate, stainless steel (mm)	Ø 80	Ø 80	Ø 80
Weight kg (net)	2 kg		
Electric Supply	Input voltage weighing scales 12 V / 500 mA		
	Input voltage power supply unit 100 V – 240 V, 50/60 Hz		
Interfaces	RS232		
	Bluetooth 2.0 (factory option) Bluetooth 4.0 (factory option)		

English

KERN (Type)	PFB 600-2A	PFB 1200-2A	PFB 2000-2A
Trademark	PFB 600-3	PFB 1200-2	PFB 2000-2
Readability (d)	0,01 g	0,01 g	0,01 g
Weighing range (max)	600 g	1200 g	2000 g
Reproducibility	0,01g	0,01 g	0,02 g
Linearity	±0,03 g	±0,03 g	±0,05 g
Smallest part weight for piece counting	20 mg	20 mg	20 mg
Reference quantities at piece counting	10, 20, 50, 100, 200		
Weighing Units	g, ct, lb, oz, d, ozt, dwt, mo, tl h, tl c, tl t, t, bt, n		
Recommended adjustment weight, not added (class)	600 g (F1)	1000 g (F1)	2000 g (F1)
Warm-up time	2 hours		
Stabilization time (typical)	3 sec.		
Operating temperature	+ 15° C .... + 35° C		
Humidity of air	max. 80 % (not condensing)		
Housing (B x D x H) mm	315 x 210 x 156		
Dimensions of wind screen (B x D x H) mm	124 x 119 x 80		
Weighing plate, stainless steel (mm)	Ø 120	Ø 120	
Weight kg (net)	2 kg		
Electric Supply	Input voltage weighing scales 12 V / 500 mA		
	Input voltage power supply unit 100 V – 240 V, 50/60 Hz		
Interfaces	RS232		
	Bluetooth 2.0 (factory option) Bluetooth 4.0 (factory option)		

English

KERN (Type)	PFB 3000-2A	PFB 6000-1A	PFB 6000-2A
Trademark	PFB 3000-2	PFB 6000-1	PFB 6000-2
Readability (d)	0,01 g	0,1 g	0,05 g
Weighing range (max)	3000 g	6000 g	6000 g
Reproducibility	0,02 g	0,1 g	0,05 g
Linearity	±0,05 g	± 0,3 g	± 0,15 g
Smallest part weight for piece counting	20 mg	200 mg	200 mg
Reference quantities at piece counting	10, 20, 50, 100, 200		
Weighing Units	g, ct, lb, oz, d, ozt, dwt, mo, tl h, tl c, tl t, t, bt, n		
Recommended adjustment weight, not added (class)	3000 g (F1)	6000 g (F1)	6000 g (F1)
Warm-up time	2 hours		
Stabilization time (typical)	3 sec.		
Operating temperature	+ 5° C .... + 35° C		
Humidity of air	max. 80 % (not condensing)		
Housing (B x D x H) mm	315 x 210 x 156		
Dimensions of wind screen (B x D x H) mm	124 x 119 x 80	-	
Weighing plate, stainless steel (mm)	Ø 120	155 x 145	
Weight kg (net)	2 kg		
Electric Supply	Input voltage weighing scales 12 V / 500 mA		
	Input voltage power supply unit 100 V – 240 V, 50/60 Hz		
Interfaces	RS232		
	Bluetooth 2.0 (factory option) Bluetooth 4.0 (factory option)		

English

2 Declaration of conformity

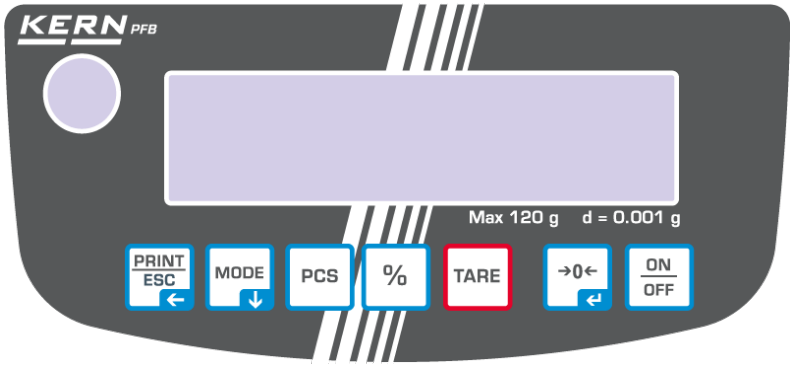
The current EC/EU Conformity declaration can be found online in:

www.kern-sohn.com/ce

English

3 Appliance overview

3.1 Keyboard overview



Button	Key designation	Function
ON OFF	**ON/OFF**	⇨ Turn on/off
→0←	**ZERO**	⇨ Zeroing
TARE	**TARE**	⇨ Taring
%	**%**	⇨ Enable calculation of percentage ⇨ Returning to weighing mode from calculation of percentage mode
PCS	**PCS**	⇨ Enable parts counting ⇨ In the piece count mode back to weighing mode
MODE	**MODE**	⇨ Weighing units switch-over ⇨ Scroll forward in menu
PRINT ESC	**PRINT**	⇨ Print out weighing result ⇨ Exit menu / back to weighing mode.

English

3.2 Overview of display

Display	Description
→0←	Zero indicator
→T←	Net weight value display
o	Stability display
Pcs	Parts counting application
%	Calculation of percentage application
◀	Tolerance weighing application
0 I F	Capacity display The capacity display moves from the left to the right and proceeds equally to the weight loaded onto the weighing balance. Its full width is reached at maximum load. This is an analogue display of the current allocation of the weighing area.
mom kg Weighing Units	(g) Gramm (kg) Kilogramm (ct) Carat (mom) Momme (oz) Ounce (ozt) Fine ounce (dwt) Penny weight (tl.h) Tael (Taiwan) (t.lt) Troy Tael (t) Tola

English

4 Basic Information (General)

4.1 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 pan. As soon as a stable weighing value is reached the weighing value can be read.

4.2 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“. (Example: Slowly draining fluids from a container on the balance.)
Do not leave permanent load on the weighing pan. 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 damage 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.

4.3 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

4.4 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.

5 Basic Safety Precautions

5.1 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.

All language versions contain a non-binding translation.
The original German is binding.

5.2 Personnel training

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

6 Transport and storage

6.1 Testing upon acceptance

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

6.2 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 the glass wind screen, the weighing platform, power unit etc. against shifting and damage.

English

7 Unpacking, Setup and Commissioning

7.1 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 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.

7.2 Unpacking and checking

Remove device and accessories carefully from packaging, remove packaging material and place device at the planned work place. Verify that there has been no damage and that all packing items are present.

Scope of delivery / serial accessories:

- Balance
- Weighing pan
- Mains adapter
- Operating manual
- Wind shield (only models PFB 120-3A, PFB 200-3 A, PFB 300-3 A, PFB 1200-2A, PFB 2000-2A, PFB 3000-2A)

7.2.1 Placing

⇨ **Remove transport securing**
(only models PFB 120-3A, PFB 200-3A, PFB 300-3A)

⇨ **Installation of weighing plate**

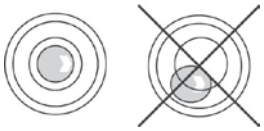
The balance must be installed in a way that the weighing plate is exactly in horizontal position.

⇨ **Install wind shield**
(only models PFB 120-3A, PFB 200-3 A, PFB 300-3 A, PFB 1200-2A, PFB 2000-2A, PFB 3000-2A)

⇨ **Levelling**

Exact alignment and stable installation are an essential requirement for repeatable results. You can compensate for minor unevenness or tilts of the footprint by levelling the weighing balance.

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



English

7.3 Mains connection

Select a country-specific power plug and insert it in the power unit.

Check, whether the voltage acceptance on the scales is set correctly. Do not connect the scales to the power grid unless the information on the scales (sticker) matches the local mains voltage.

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

Important:

- Before starting your weighing balance, check the mains cable for damage.
- Ensure that the power unit does not come into contact with liquids.
- Ensure access to power plug at all times.

7.4 Connecting to power supply

⇨ Supply power to balance via mains adapter.

⇨ Press the **ON/OFF** key to light up the display.
The balance will carry out a display test. As soon as the weight display appears, the balance is ready for weighing.

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 connection, accumulator or battery).
The accuracy of the balance depends on the local acceleration of gravity. Strictly observe hints in chapter Adjustment.

7.5 Connection of peripheral devices

Before connecting or disconnecting of additional devices (printer, PC) to the data interface, always disconnect the balance from the power supply.
With your balance, only use accessories and peripheral devices by KERN, as they are ideally tuned to your balance.

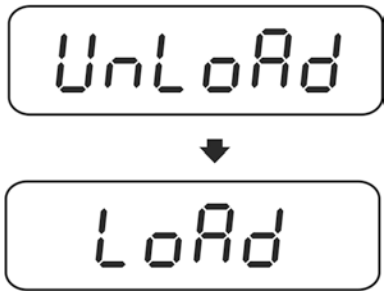
7.6 Adjustment

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 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.

- Observe stable environmental conditions. A warming up time (see chapter 1) is required for stabilization.
- Prepare adjustment weight, see chap. 1.
  The adjustment weight you use is dependent on the capacity of the balance. Perform adjustment as close as possible to the maximum load.
  Info about test weights can be found on the Internet at: http://www.kern-sohn.com
- Ensure that there are no objects on the weighing pan.

Procedure:

⇨ In weighing mode press and hold the **MODE** key until **<UnLoAd>** is displayed on the screen.
or
call up menu item **"P2 CAL"** and confirm by pressing the **ZERO** key.

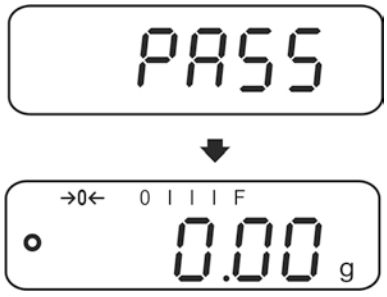


⇨ When display **<LoAd>** appears, put the necessary adjustment weight (see chap.1; Technical Data) on the center of the weighing plate.

⇨ Adjustment will be carried out automatically after stability control.

⇨ After successful adjustment „PASS" will be displayed. The balance returns automatically into weighing mode.

⇨ Take away adjustment weight



English

7.7 Linearization

Linearity shows the greatest deviation of a weight display on the scale to the value of the respective test weight according to plus and minus over the entire weighing range.
If linearity deviation is discovered during a monitoring of test resources, you can improve this by means of linearization.

- In balances with a resolution of > 15 000 dividing steps carrying out a linearisation is recommended.
- Carrying out linearization is restricted to specialist staff possessing well acquainted with the workings of weighing scales.
- The test weights to be used must be adapted to the weighing scale's specifications; see chapter "Monitoring of test equipment".
- Observe stable environmental conditions. Stabilisation requires a certain warm-up time.
- After successful linearisation you will have to carry out calibration; see chapter "Monitoring of test equipment".
- Provide the adjustment weights required as shown in table 1.

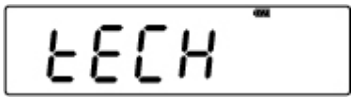
Table 1 Linearisation points:

Max	LoAd 1	LoAd 2	LoAd 3	LoAd 4
120 g	30 g	60 g	90 g	120 g
200 g	50 g	100 g	150 g	200 g
300 g	50 g	100 g	200 g	300 g
1200 g	300 g	600 g	900 g	1200 g
2000 g	500 g	1000 g	1500 g	2000 g
3000 g	0.5 kg	1 kg	2 kg	3 kg
6000 g	1 kg	2 kg	4 kg	6 kg

Procedure:

⇨ Switch on weighing scales and press and hold the **MODE** key during the self-test until **“F1 Unt“** is shown on the screen.

⇨ Press the **MODE** key repeatedly until **“tECH“** is shown on the screen.

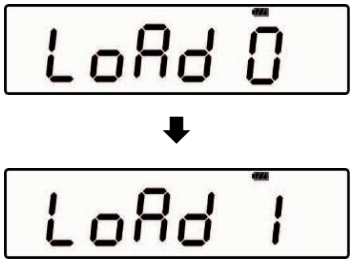


⇨ Confirm with **ZERO** button.

⇨ Press PCS, PRINT ESC and TARE successively, „**P1 Lin**“ appears

⇨ Again press the **ZERO** key until “Pin“ reappears.

⇨ Press PRINT ESC, PCS and % one after the other, whereupon “LoAd 0“ will be shown. Ensure that there are no objects on the weighing pan.
An audio sound indicates the end of the stability control and “LoAd 1“ will be shown.



⇨ Place the first adjustment weight. An audio sound will follow after stability control and „LoAd 2“ will be shown. Take away adjustment weight.

⇨ Place the second adjustment weight. An audio sound will follow after stability control and „LoAd 3“ will be shown. Take away adjustment weight.

English

⇨ Put on the third adjustment weight. An audio sound will follow after stability control and „LoAd 4“ will be shown. Take away adjustment weight.

⇨ Place the fourth adjustment weight (max). An audio sound will follow after stability control and „LoAd 0“ will be shown. Take away adjustment weight.

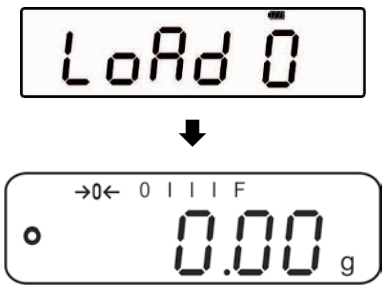
⇨ Ensure that there are no objects on the weighing pan.
An audio sound will follow after stability control and “LoAd 4“ will be shown.

⇨ Place fourth adjustment weight again. An audio sound will follow after stability control and “LoAd 3“ will again be shown. Take away adjustment weight.

⇨ Put on the third adjustment weight. An audio sound will follow after stability control and „LoAd 2“ will be shown. Take away adjustment weight.

⇨ Place the second adjustment weight. An audio sound will follow after stability control and „LoAd 1“ will be shown. Take away adjustment weight.

⇨ Place the first adjustment weight. An audio sound will follow after stability control and „LoAd 0“ will be shown. Take away adjustment weight. Ensure that there are no objects on the weighing pan.
An audio sound will follow after stability control and the weighing scale will change automatically into weighing mode.



8 Basic Operation

8.1 Start-up

⇨ Press the **ON/OFF** key to light up the display.
The balance will carry out a display test. As soon as the weight display appears, the balance is ready for weighing.

8.2 Switching Off

⇨ Press **ON/OFF** button, the display disappears

8.3 Zeroing

Resetting to zero corrects the influence of light soiling on the weighing plate.

⇨ Unload the balance

⇨ Press the **ZERO** button, the zero display and the indicator →0← will appear.

8.4 Simple weighing

1. Place goods to be weighed on balance.
2. Wait for stability display ⭘ .
3. Read weighing result.

Overload warning
Overloading exceeding the stated maximum load (max) of the device, minus a possibly existing tare load, must be strictly avoided. This could damage the instrument.
Exceeding maximum load is indicated by the display of „----“ and an audio sound. Unload weighing system or reduce preload.

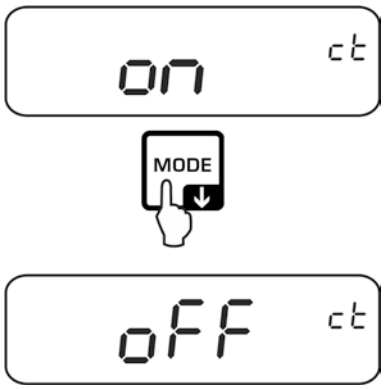
English

8.5 Switch-over weighing unit

How to enable weighing units:

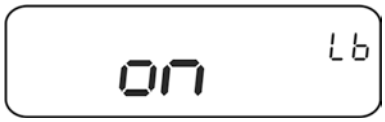
⇨ Switch on weighing scales and press and hold the **MODE** key during the self-test until **“F1 Unt“** is shown on the screen.

⇨ Press the **ZERO** key, the first weighing unit with the current setting will be displayed.



⇨ Press the **MODE** key to enable [on] / disable [off] the weighing unit.

⇨ Use the **ZERO** key, to confirm. The next unit will be shown.



⇨ Press the **MODE** key to enable [on] / disable [off] the displayed weighing unit.

⇨ Use the **ZERO** key, to confirm. The next unit will be shown.

⇨ Repeat sequence for each weighing unit.

Switch-over weighing unit:

Press the **MODE** key to switch the display in weighing mode to the previously enabled weighing units.

English

8.6 Weighing with tare

⇨ Deposit weighing vessel. After successful stability control press the **TARE** button. Zero display and indicator →T← appear. The weight of the container is now internally saved.

⇨ Weigh the material, the net weight will be indicated.

- 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 load from weighing pan and press the **TARE** button.
- The taring process can be repeated any number of times, e.g. when adding several components for a mixture (adding). The limit is reached when the taring range capacity is full.

English

9 Applications

9.1 Percent determination

Percent weighing allows to display weight in percent, in relation to a reference weight.

Put the nominal weight

⇨ Place the nominal weight (reference weight which corresponds to 100 %).

⇨ Wait for stability display, then press the % button 100% is displayed.

Percent weighing /commutation

⇨ Place goods to be weighed on balance.
The weight of the item to be weighed is displayed in percent, with reference to the nominal weight.

⇨ Press the % key, the weight of the item to be weighed is displayed in the current weighing unit e.g. gram.

9.2 Parts counting

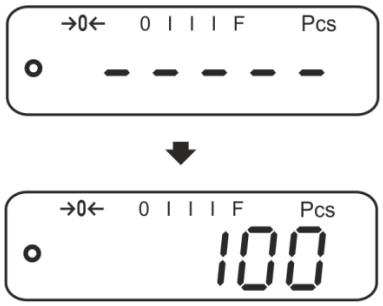
Before the balance can count parts, it must know the average part weight (i.e. reference). Proceed by putting on a certain number of the parts to be counted. The balance determines the total weight and divides it by the number of parts, the so-called reference quantity. Counting is then carried out on the basis of the calculated average piece weight.
As a rule:
The higher the reference quantity the higher the counting exactness.

Set reference

⇨ Press the **PCS** key, the current reference quantity (e.g. 10) and the indicator **Pcs** are displayed.

⇨ Press the **MODE** key to set the desired reference quantity (i.e. 100), selectable SP 10, SP 20, SP 50, SP 100, SP 200.

⇨ Place as many items to be counted (such as 100 items) as demanded by the set reference quantity and confirm by **ZERO** key. The weighing scales calculate the reference weight. The current quantity (such as 100 items) will be displayed.



⇨ Remove reference weight. The balance is from now in parts counting mode counting all units on the weighing plate.

Switching over between quantity and weight display

⇨ If required, place an empty container on the weighing pan and tare by pressing the **TARE** key.

⇨ Weigh the load and read the quantity.

⇨ Press the **PCS** key to display the weight.

English

9.3 Totalization

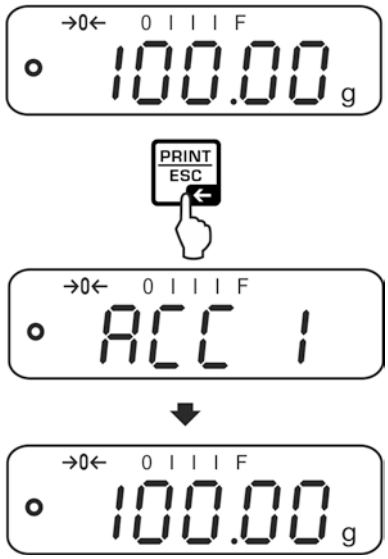
9.3.1 Manual totalizing

With this function the individual weighing values are added into the summation memory by pressing the **PRINT** key and edited when an optional printer is connected.

- For menu settings, see chapter 10.3:
  „F3 COM“ ⇨ „S 232“ ⇨ „P Prt“
  „F4 Acc“ ⇨ „on“
- The totalizing function is not active when the weight is under 20d.

Add up:

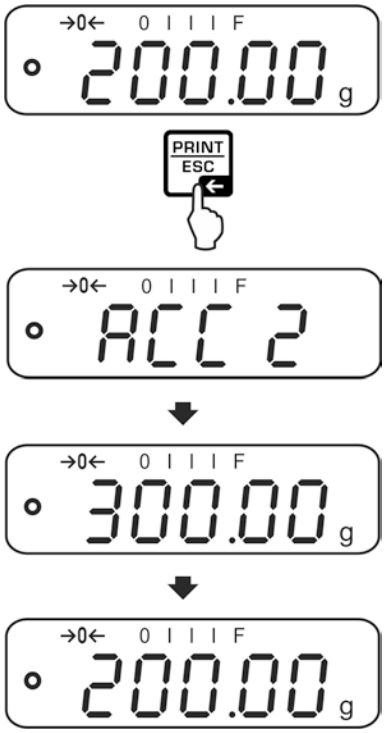
⇨ Place item to be weighed A, e.g. 100 g.
Wait for stability display, then press the **PRINT** key. The weight value will be saved and printed if an optional printer is connected. The number of weighings, followed by the total weight will be indicated.



⇨ Remove the weighed good. More weighed goods can only be added when the display ≤ zero.

English

⇨ Place item to be weighed B, e.g. 200 g.
Wait for stability display, then press the **PRINT** key. The weight value will be added to the summation memory and edited. Number of weighings, followed by the total weight will be displayed for 2 sec. After that the current weighing value is displayed.



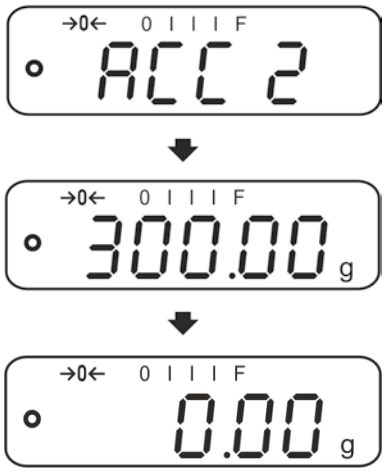
⇨ Add more weighed goods as described before.
Please note that the weighing system must be unloaded between the individual weighing procedures.

This process may be repeated 99 times or till such time as the capacity of the weighing system has been exhausted.

English

Display and edit sum „Total“:

⇨ When the balance is **unloaded** (zero display) press the **PRINT** key, the number of weighings, followed by the total weight will be shown for 2 sec and printed if an optional printer is connected.



Delete sum memory:

⇨ With the weighing scales **unloaded** (zero display) press the **PRINT** key, wait for display of “**total weight**” and press the **PCS** key. The data in the summation memory are deleted.

Printout example (KERN YKB-01N):

1:	100.00 g N	First weighing
2:	200.00 g N	Second weighing
- - - - - - - - - - - - - - - - - - - -		
1-2:	300.00 g C	Total weight

9.3.2 Automatic adding-up

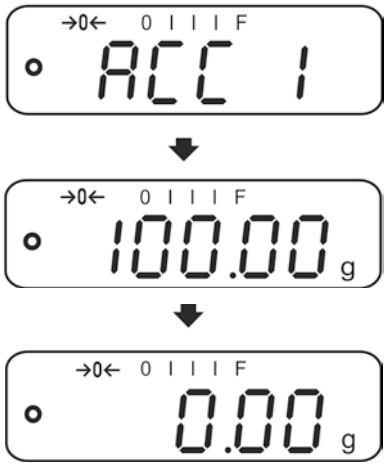
With this function the individual weighing values are automatically added into the summation memory when the balance is unloaded without pressing PRINT ESC and edited, when an optional printer is connected.

- Menu settings, chap. 10.3:
  „F3 COM“ ⇨ „S 232 ⇨ „P AUto“
  „F4 Acc“ ⇨ „on“
- The totalizing function is not active when the weight is under 20d.

Add up:

⇨ Place item to be weighed A, e.g. 100 g.
After stabilisation control has taken place, you will hear an audio sound.

⇨ Remove the weighed good. The weighing value is added to the summation memory and printed if an optional printer is connected.

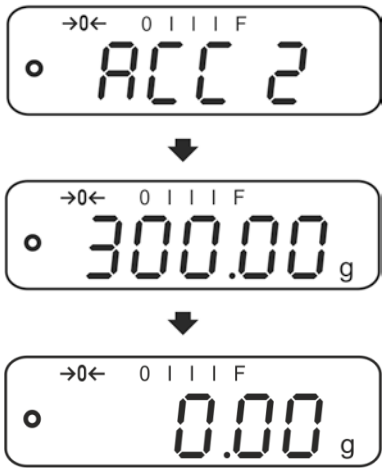


⇨ More weighed goods can only be added when the display ≤ zero.

⇨ Place item to be weighed B, e.g. 200 g.
After stabilisation control has taken place, you will hear an audio sound.

English

⇨ Remove the weighed good. The weighing value is added to the summation memory and printed if an optional printer is connected. Number of weighings, followed by the total weight will be displayed for 2 sec.



⇨ Add more weighed goods as described before.
Please note that the weighing system must be unloaded between the individual weighing procedures.

This process may be repeated 99 times or till such time as the capacity of the weighing system has been exhausted.

For how to display and delete weighing data as well as printout example see chap. 9.3.1

10 Menu

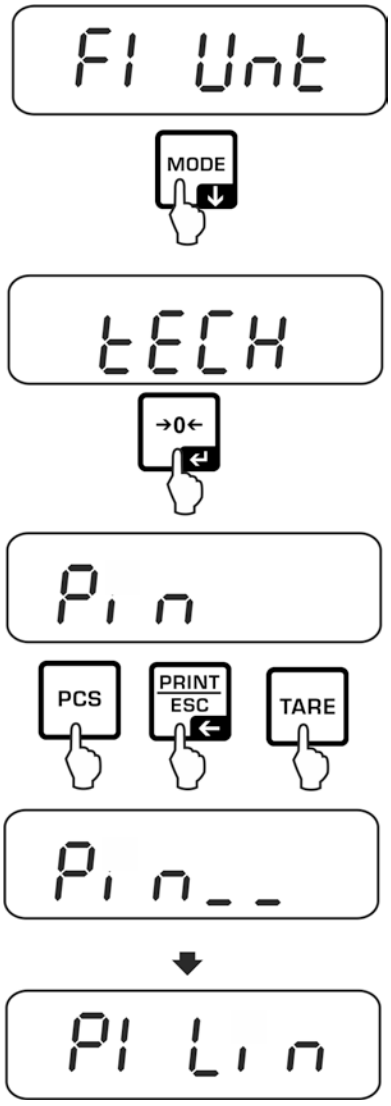
10.1 Navigation in the menu

Call up menu	⇨ Switch-on balance and during the selftest press MODE. The first menu item „**F1 Unt**„ is displayed.
Select menu item	⇨ With help of MODE, the individual menu items can be selected one after the other.
Select setting	⇨ Confirm selected menu item by pressing →0←. The current setting will be displayed.
Change settings	⇨ Switch into the available settings using MODE.
Acknowledge setting / exit the menu	⇨ Either save by pressing →0← or cancel by pressing MODE.
Return to weighing mode	⇨ Press PRINT ESC repeatedly to exit menu.

English

10.2 Access to technology menu

The access to the technology menu „tECH“ is locked by the key combination PCS, PRINT ESC, TARE.



English

10.3 Overview

Factory settings are marked by *.

Menu block	Menu item		Available settings / explanation
F1 Unt **Weighing Units**			g, ct, lb, oz, d, yn, ozt, dwt, mom, tl h, tl c, tl t, t, bt, n
F2 bl **Display background illumination**	EL AU*		Automatic background illumination on when weighing pate is loaded or key pressed.
	EL on		Background lighting of display is switched on permanently
	EO oFF		Display background illumination off
F3 Com Interface parameters	S 232 S USb	Use MODE to select the interface: RS232 or USB	
		P Prt*	• Output of stable weight value after pressing PRINT ESC ("F4 Acc" ⇨ „off") • Manual totalizing, see chap.9.3.1 („F4 Acc" ⇨ „on"). Press PRINT ESC and the weighing value will be added to the summation memory and issued.
		P Cont	Continuous data output
		P AUto	For automatic totalizing see chap. 9.3.2 This function is used to issue and add individual weighing values automatically to the summation memory on unloading of weighing scale.
		wirel	Not documented

English

		P ASK	Remote control instructions
		Acknowledge selection by →0← .	
		b600 ⬇ b 9600*	Available Baudrate: 600, 1200, 2400, 4800, 9600*
		Acknowledge selection by →0← .	
		tP	Standard printer setting
		LP 50	Not documented
		Acknowledge selection by →0← .	
		Eng*	Standard stetting English. only displayed for setting „LP 50“
		chi	Not documented
F4 Acc	Acc on	Summation function enabled	
	Acc of	Summation function disabled	
tECH Technology menu	Pin	For access to technology menu see chap. 10.2	
P1 Lin	Linearisation, see chap. 7.7		
P2 CAL	Adjustment, see chap. 7.6		
P3 Cnt	XXXXXX	Display internal resolution	
P4 A 2n	A2 oFF	Automatic zero point correction switched off	
	A2n 0.5d	Automatic zero point correction (AutoZERO) by changing the display, digits selectable (0.5d, 1d, 2d, 4d)	
	A2n 1d		
	A2n 2d*		
	A2n 4d		
P5 GrA	XXXXXX	Local gravitation constant	
P6 CAP	XXXX	Capacity (max)	

English

11 Interfaces

Via the interfaces weighing data may be exchanged with connected peripheral devices.

RS 232 interface	USB interface for PC connection
Menu setting, see chapter 10.1: **„F3 COM“ ⇨ „S 232“**	Menu setting, see chapter 10.1: **„F3 COM“ ⇨ „USB“**
Suitable peripheral devices: • Printer • PC	Suitable peripheral devices: • PC On the PC a virtual COM-Port is installed, which is recognized and triggered by the PC software (e.g. KERN balance connection).

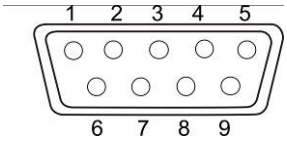
The following conditions must be met to provide successful communication between the weighing balance and the peripheral devices.

- Connect balance using a suitable cable with the interface of the peripheral device. Faultless operation requires an adequate KERN interface cable.
- Communication parameters (baud rate, bits and parity) of balance and peripheral device must match.

11.1 RS232

11.1.1 Technical data

Connection (RS 232) 9 pin d-subminiature bushing



Pin 2 input
Pin 3 output
Pin 5 signal earth

Baud rate Optional 600/1200/2400/4800/9600

Parity 8 bits, no parity

English

11.1.2 Printer operation (RS 232)

Printout examples (KERN YKB-01N):

1. Menu settings F3 COM <P Prt> / F4 <Acc of>

Weighing mode

```
300.00 g
```

Percent determination

```
50.01 %
```

Parts counting

```
20 PCS
5.00027g /P
100 g
```

Totalization

```
1:        100.00 g N
2:        200.00 g N
- - - - - - - - - - - - - - - - - -
1-2:      300.00 g C
```

2. Menu settings F3 COM <P Cont> / F4 <Acc of>

stable / gross

```
ST, G:    50.00 g
```

stable / net

```
ST, N:    50.00 g
```

unstable / gross

```
US, G:    50.00 g
```

unstable / net

```
US, N:    50.00 g
```

Weighing values ≤ zero are not edited via the interface.

11.1.3 Output log (continuous output)

HEADER1: ST = stable, US = instable
HEADER2: N = net, G = gross

11.2 Remote control instructions

Command	Function
S	Stable weighing value for the weight is sent via the interface
W	Weighing value for the weight (stable or unstable) is sent via the interface
T	No data are sent, the balance carries out the tare function.
Z	No data are sent, the zero-display appears.
P	Quantity is sent via the interface

English

11.3 Bluetooth (Factory option)

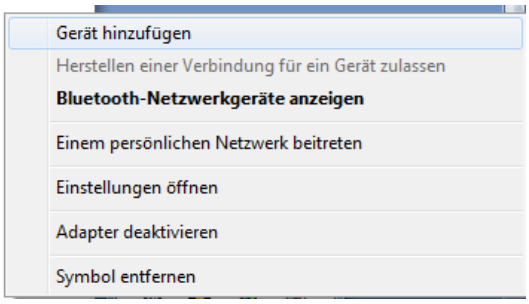
Legal notices
Bluetooth® is a registered and protected trademark of Bluetooth® SIG,Inc.
The wordmark and logos are the property of Bluetooth® SIG,Inc.
The use of such trademarks is licensed by KERN. Other trademarks and brand names are the property of their respective owners.

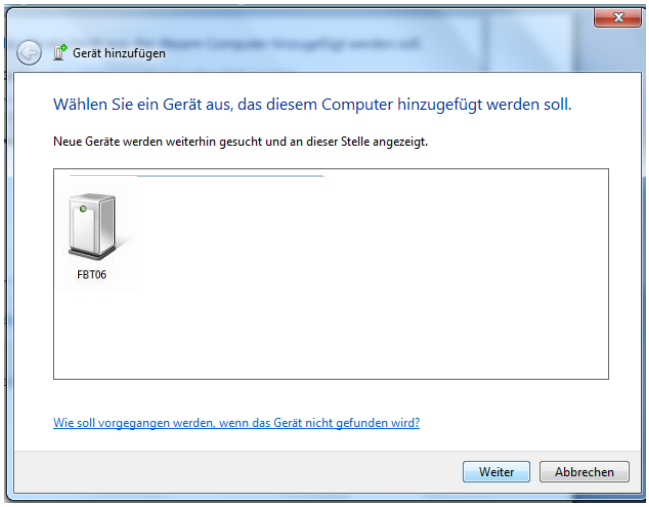
11.3.1 Add device

⇨ Switch on balance

⇨ Enable Bluetooth and click the Bluetooth icon on the task bar.

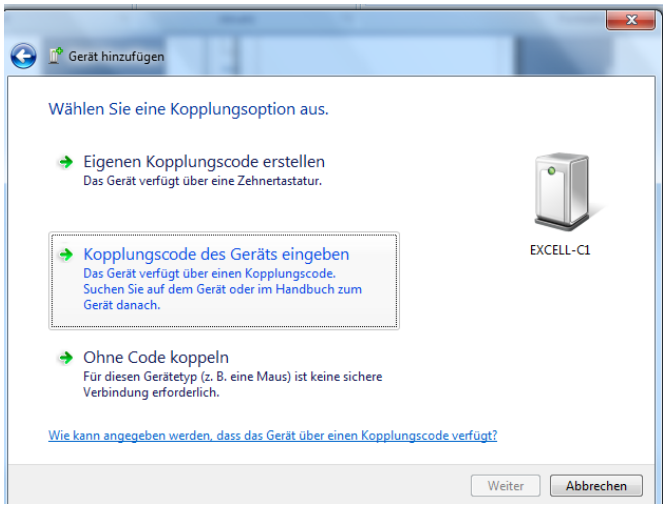
⇨ Click on „Add device“.

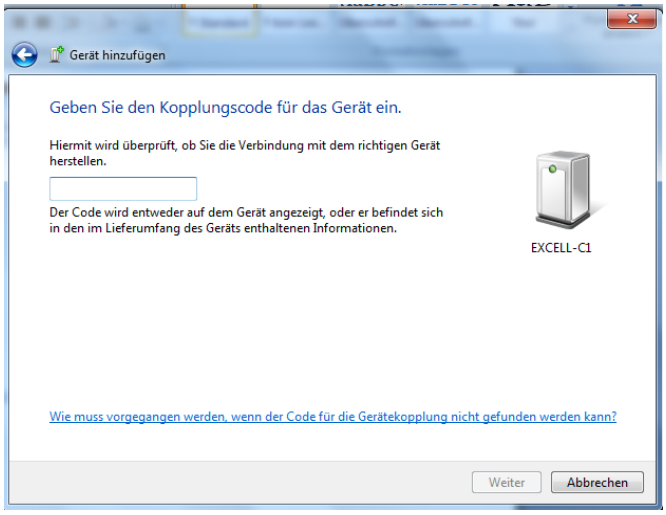




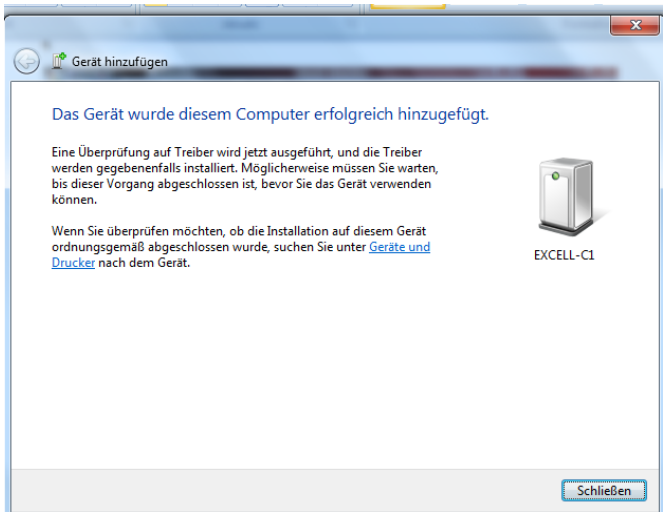
⇨ Mark “FBT06“ and click “Next“

⇨ Click on "Enter pairing code of the device"





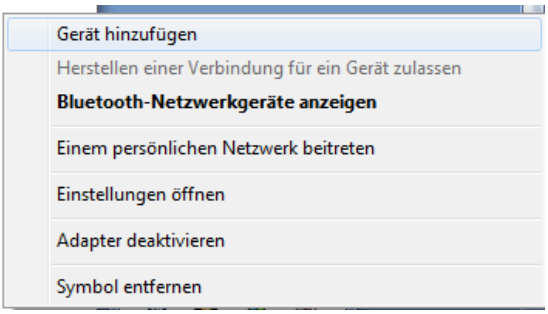
⇨ Enter code 1234



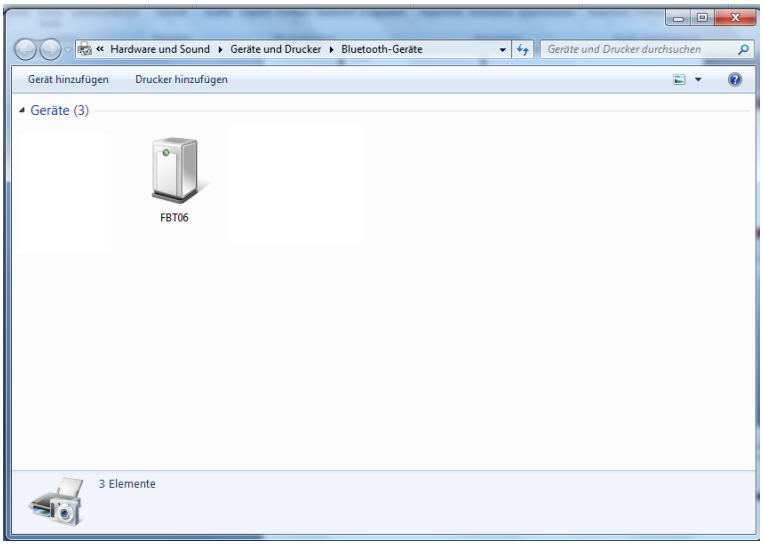
⇨ Click on „Close“

English

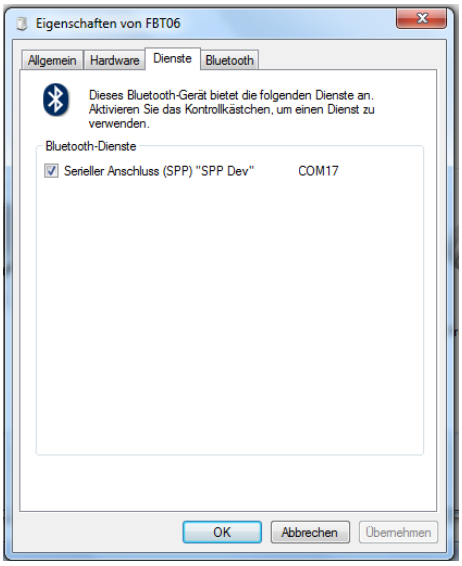
11.3.2 Determine COM Port number



⇨ Display Bluetooth network appliances



⇨ Double-click to display the COM Port



English

12 Servicing, maintenance, disposal

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

12.1 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.
Polish 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.

12.2 Servicing, maintenance

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

⇨ Before opening, disconnect from power supply.

12.3 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.

13 Error messages

Defect/ fault	Description	Possible causes / troubleshooting
Err 3	Incorrect adjusting weight	Place correct adjustment weight (see chap. 1; Technical Data
Err 4	Zero range exceeded	Remove load and reset weighing scales to zero with ZERO key.
Err 5	Keyboard error	Inadmissible input
Err 6	Electronic error	Switch balance off and on again. If the error message remains displayed, please contact your dealer.
	Transport Securing	Remove the transportation lock
Err 19	Unable to initialise zero point	• Measuring cell defective / overloaded • Object on weighing pan / contact • Transport locking device was not removed • Main board defective ⇨ Remedy: Adjust and linearise weighing scales

English

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.

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.
The displayed weight is permanently changing	• Draught/air movement • Table/floor vibrations • Weighing pan has contact with other objects. • 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. • The balance is on an uneven surface. • 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.