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

Operating Manual

KERN ILB
KERN PLB

Version 1.1
02/2008
GB

ILB/PLB-BA-e-0811

GB

KERN PLB

Version 1.1 02/2008

Operating Manual

Electronic Platform Balance/Precision Balance

English

Table of Contents

English

English

1 Technical Data

KERN ILB

KERN	*ILB 12K0.1D*	*ILB 30K0.2D*
Weighing range (max)	*6 kg//12 kg*	*12 kg//30kg*
Readability (d)	*0.1 g//0.2 g*	*0.2 g//0.5 g*
Reproducibility	*0.2 g//0.4 g*	*0.4 g//1 g*
Linearity	*± 0.3 g / 0.6 g*	*± 0.6 g/± 1.5 g*
Recommended adjustment weight, not added (class)	*10 kg (F2)*	*20 kg (F2)*
Minimum unit weight at piece counting	*> 100 mg*	*> 200 mg*
Warm-up time	*2 hours*	
Reference quantities at piece counting	*10, 20, 50, freely selectable*	
Weighing unit	*g, kg, ct, lb, N*	
Stabilization time (typical)	*3 sec.*	
Electric Supply	*Mains adapter 220-240 V/50 Hz 11V AC*	
Rechargeable batteries (standard)	*6 x NIMH R6 (AA), service life with background lighting approx.35 h/charging time approx.10 h*	
Battery	*6 x 1.5 V AA*	
Operating temperature	*+ 15° C …. + 30° C*	
Humidity of air	*max. 80 % (not condensing)*	
Weight kg (net)	*6 kg*	
Interface	*RS 232C*	

English

KERN	*ILB 60K0.5D*	*ILB 120K1D*
Weighing range (max)	*30 kg//60 kg*	*60 kg//120kg*
Readability (d)	*0.5 g//1 g*	*1 g//2 g*
Reproducibility	*1 g//2 g*	*2 g//4 g*
Linearity	*± 1.5 g / 3 g*	*± 3 g/± 6 g*
Recommended adjustment weight, not added (class)	*50 kg (F2)*	*100 kg (F2)*
Minimum unit weight at piece counting	*> 500 mg*	*> 1 g*
Warm-up time	*2 hours*	
Reference quantities at piece counting	*10, 20, 50, freely selectable*	
Weighing unit	*g, kg, ct, lb, N*	*g, kg, lb, N*
Stabilization time (typical)	*3 sec.*	
Electric Supply	*Mains adapter 220-240 V/50 Hz 11V AC*	
Rechargeable batteries (standard)	*6 x NIMH R6 (AA), service life with background lighting approx.35 h/charging time approx.10 h*	
Battery	*6 x 1.5 V AA*	
Operating temperature	*+ 15° C …. + 30° C*	
Humidity of air	*max. 80 % (not condensing)*	
Weight kg (net)	*20 kg*	
Interface	*RS 232C*	

KERN PLB

KERN	*PLB 100-3*	*PLB 200-3*
Readability (d)	*0,001 g*	*0,001 g*
Weighing range (max)	*100 g*	*200 g*
Taring range (subtractive)	*100 g*	*200 g*
Reproducibility	*0,002 g*	*0,002 g*
Linearity	*0,003 g*	*0,003 g*
Minimum unit weight at piece counting	*0,001 g*	*0,001 g*
Warm-up time	*2 hours*	*2 hours*
Adjustment weight	*100 g (F1)*	*200 g (F1)*
Wind protection	*yes*	*yes*
Appropriate for verification	*no*	
Reference quantities at piece counting	*10, 20, 50, 100, freely selectable*	
Weighing Units	*g, ct*	
Stabilization time (typical)	*3 sec.*	
Operating temperature	*+ 15° C .... + 30° C*	
Humidity of air	*max. 80 % (not condensing)*	
Underfloor weighing	*Clevis type eyelet, standard*	
Weighing plate (stainless steel) mm	*85*	*85*
Weight kg (net)	*3.6 kg*	

English

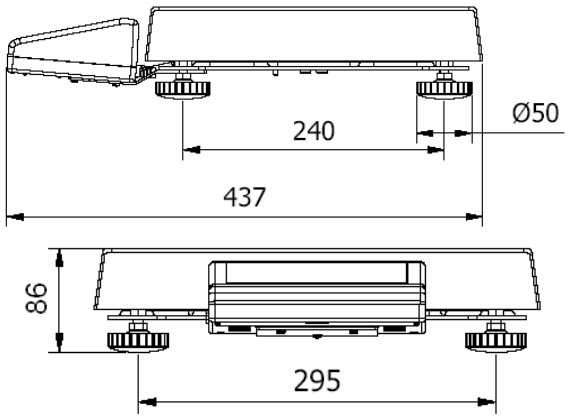
KERN	***PLB 1000-2***	***PLB 2000-2***
Readability (d)	*0,01 g*	*0,01 g*
Weighing range (max)	*1000 g*	*2000 g*
Taring range (subtractive)	*1000 g*	*2000 g*
Reproducibility	*0.01 g*	*0.02 g*
Linearity	*± 0,02 g*	*0,03 g*
Minimum unit weight at piece counting	*0,01 g*	*0,01 g*
Warm-up time	*2 hours*	*2 hours*
Adjustment weight	*1000 g (F1)*	*2000 g (F1)*
Wind protection	*no*	
Appropriate for verification	*no*	
Reference quantities at piece counting	*10, 20, 50,100, freely selectable*	
Weighing Units	*g, ct*	
Stabilization time (typical)	*3 sec.*	
Operating temperature	*+ 15° C .... + 30° C*	
Humidity of air	*max. 80 % (not condensing)*	
Underfloor weighing	*Clevis type eyelet, standard*	
Weighing plate (stainless steel) mm	*128 x 128*	*128 x 128*
Weight kg (net)	*3.6 kg*	*3.6 kg*

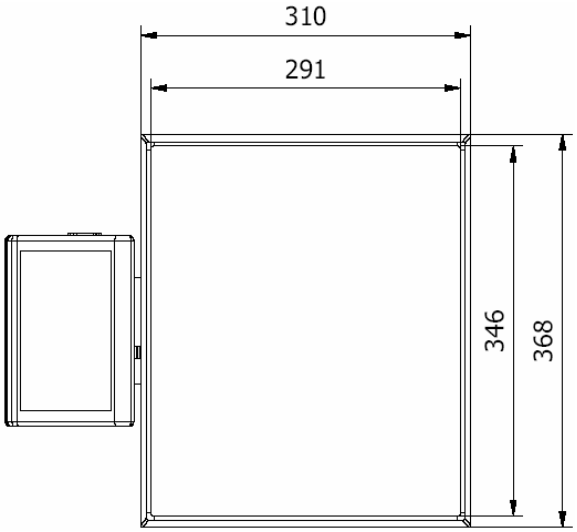
KERN	*PLB 10000-1*	*PLB 20000-1*
Readability (d)	*0,1 g*	*0,1 g*
Weighing range (max)	*10000 g*	*20000 g*
Taring range (subtractive)	*10000 g*	*20000 g*
Reproducibility	*0,1 g*	*0,2 g*
Linearity	*± 0,2 g*	*0,3 g*
Minimum unit weight at piece counting	*0,1 g*	*0,1 g*
Warm-up time	*2 hours*	*2 hours*
Adjustment weight	*10 kg (F1)*	*20 kg (F1)*
Wind protection	*no*	*no*
Appropriate for verification	*no*	
Reference quantities at piece counting	*10, 20, 50, 100, freely selectable*	
Weighing Units	*g, ct*	
Stabilization time (typical)	*3 sec.*	
Operating temperature	*+ 15° C .... + 30° C*	
Humidity of air	*max. 80 % (not condensing)*	
Underfloor weighing	*Clevis type eyelet, standard*	
Weighing plate (stainless steel) mm	*165 x 165*	*165 x 165*
Weight kg (net)	*3.6 kg*	*3.6 kg*

English

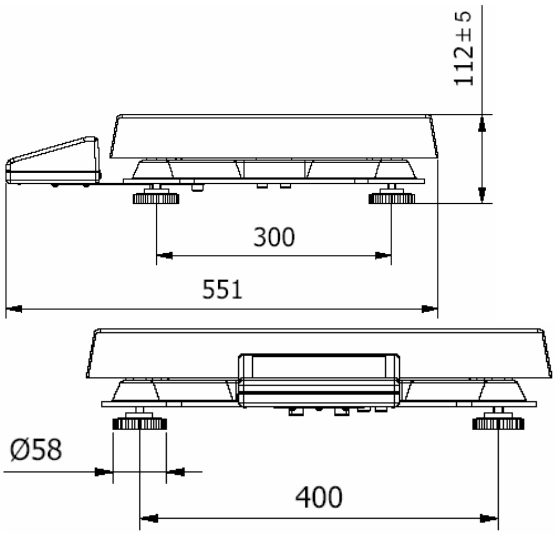
1.1 Dimensions

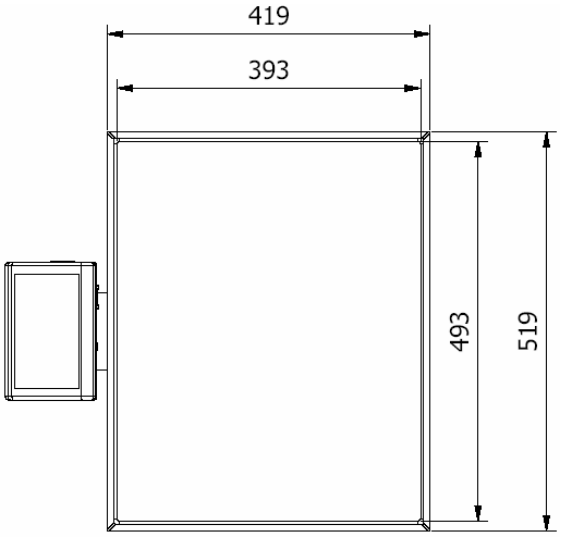
ILB 12K0.1D, ILB 30K0.2D:



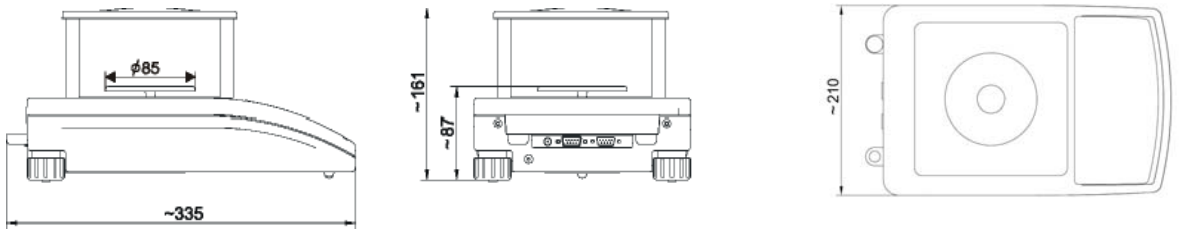


ILB 60K0.5D, ILB 120K1D:

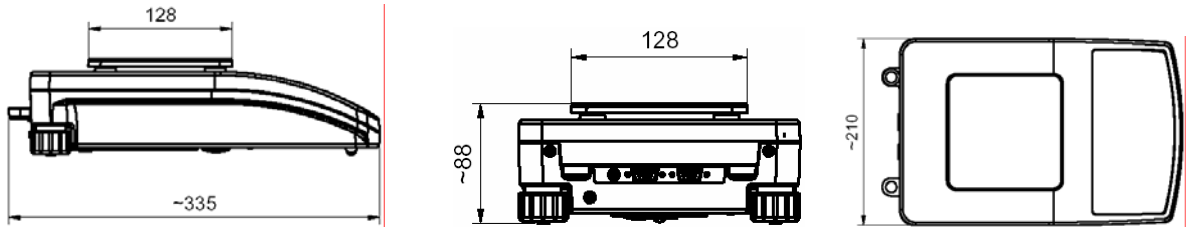




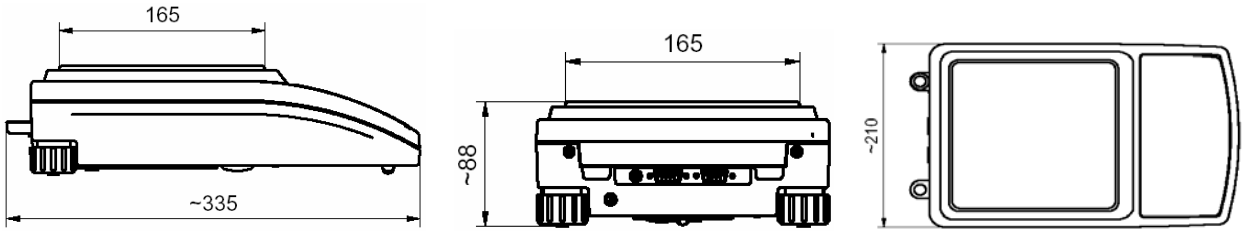
PLB 100-3, PLB 200-3



PLB 1000-2, PLB 2000-2



PLB 10000-1, PLB 20000-1



English

2 Declaration of conformity

KERN & Sohn GmbH
D-72322 Balingen-Frommern
Postbox 4052
email: info@kern-sohn.de
Phone: 0049-[0]7433- 9933-0
Fax: 0049-[0]7433-9933-149
Internet: www.kern-sohn.de

Declaration of conformity

EC-Konformitätserklärung
EC- Déclaration de conformité
EC-Dichiarazione di conformità
EC- Declaração de conformidade
EC-Deklaracja zgodności

EC-Declaration of -Conformity
EC-Declaración de Conformidad
EC-Conformiteitverklaring
EC- Prohlášení o shode
EC-Заявление о соответствии

English

D	Konformitäts-erklärung	Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.
GB	Declaration of conformity	We hereby declare that the product to which this declaration refers conforms with the following standards.
CZ	Prohlášení o shode	Tímto prohlašujeme, že výrobek, kterého se toto prohlášení týká, je v souladu s níže uvedenými normami.
E	Declaración de conformidad	Manifestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las normas siguientes
F	Déclaration de conformité	Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.
I	Dichiarazione di conformità	Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.
NL	Conformiteit-verklaring	Wij verklaren hiermede dat het product, waarop deze verklaring betrekking heeft, met de hierna vermelde normen overeenstemt.
P	Declaração de conformidade	Declaramos por meio da presente que o produto no qual se refere esta declaração, corresponde às normas seguintes.
PL	Deklaracja zgodności	Niniejszym oświadczamy, że produkt, którego niniejsze oświadczenie dotyczy, jest zgodny z poniższymi normami.
RUS	Заявление о соответствии	Мы заявляем, что продукт, к которому относится данная декларация, соответствует перечисленным ниже нормам.

Electronic Balance: KERN ILB/PLB

Mark applied	EU Directive	Standards	Title
CE	2004/108/EC	EN 55022: 2000	EMC
	2006/95/EC	EN 61010-1: 2004	Low Voltage

Date: 27.11.2007

Signature:

Gottl. KERN & Sohn GmbH
Management

Gottl. KERN & Sohn GmbH, Ziegelei 1, D-72336 Balingen, Tel. +49-[0]7433/9933-0,Fax +49-[0]7433/9933-149

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 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 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.

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 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.

4.3 Safety instructions battery operation (only KERN ILB)

The kind of power supply is shown when the balance is started.

bAtt / SLA / nInnH

nInnH function „CHr6“ activated „YES“/ 6 x NiMH rechargeable batteries used
SLA function „CHr6“ activated „YES“/ SLA rechargeable batteries used
bAtt function „CHr6“ deactivated „no“ battery operation

CAUTION Explosion Hazard: During battery operation the function „**CHr6**“ must be set to „**no“** , see chap. 12.5.

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.
Attach possibly existing transport safeguards. Secure all parts, e.g. weighing plate, power unit etc., to prevent slipping 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 charge of goods to be weighed or weighing container.

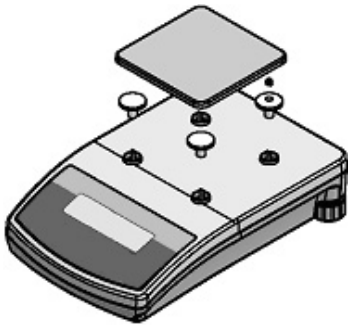
Major display deviations (incorrect weighing results) may be experienced should electromagnetic fields (e.g. due to mobile phones or radio equipment), static electricity accumulations or instable power supply occur. Change location or remove source of interference.

6.2 Unpacking

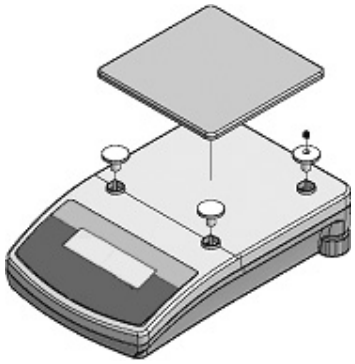
Carefully remove the balance from the packaging, remove plastic cover and setup balance at the intended workstation.

6.2.1 Placing

Models PLB



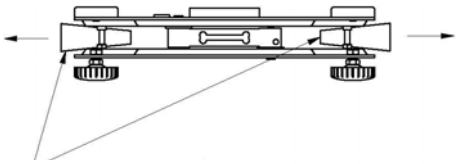
PLB 1000-2, PLB 2000-2



PLB 10000-1, PLB 20000-1

Models ILB

- Remove the transportation lock



- Install weighing plate

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:

- Balance
- Mains power supply
- Rechargeable batteries (inserted)
- Operating Manual
- Wind shield (only mod. with readability d=1mg)

6.3 Mains connection

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.

6.4 Battery power supply

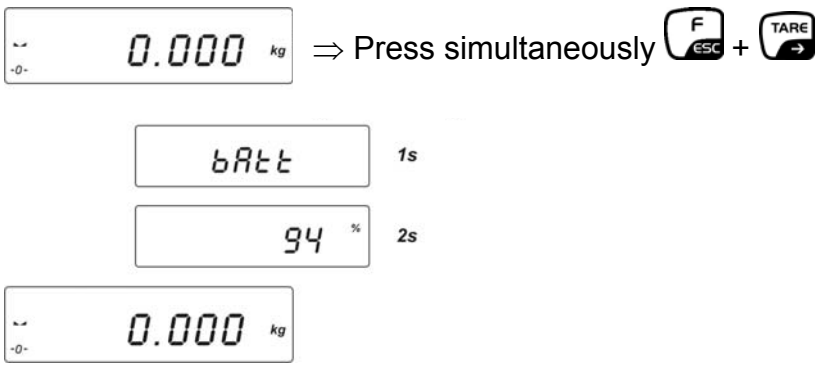
The balance is fitted with rechargeable NiMH R6 (AA) batteries and plug-in power pack as standard.
Use the provided power pack for battery charging.
During initial operation it is very important to charge the batteries for c. 12 hours. Afterwards discharge the batteries completely 3 times (watch display message and automatic disconnection) and recharge. If this is done, the life of the batteries will be increased and the nominal capacity of the batteries reached.

For operation with rechargeable batteries the balance has some functions which can be activated or deactivated in the menu; see Section 12.4.
If the AUTO-OFF function is activated, the balance switches off automatically to save the rechargeable batteries after 5 minutes without load change.
If the symbol or “bat lo" appears in the display when switching on the balance, this means that the capacity of the rechargeable batteries will soon be exhausted, charge the rechargeable batteries as soon as possible.
This symbol will pop up every 2 seconds during the charging process.

6.5 Battery operation (only KERN ILB)

Attention: Note the safety instructions, see chap. 4.3

6.5.1 Battery charging status display



6.6 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.

6.7 Initial Commissioning

The kind of power supply is shown when the balance is started.

bAtt / SLA / nInnH

nInnH function „CHr6“ activated „YES“/ 6 x NiMH rechargeable batteries used
SLA function „CHr6“ activated „YES“/ SLA rechargeable batteries used
bAtt function „CHr6“ deactivated „no“ battery operation

CAUTION Explosion Hazard: During battery operation the function „**CHr6**“ must be set to „**no“** , see chap. 12.5.

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.

6.7.1 Switching on/off

Start-up Press the **ON/OFF** button for approx. 0.5 sec.
The balance will carry out a self-test The balance is ready for weighing when the weight display appears.

Switching Off Press the **ON/OFF** button for approx. 0.5 sec.
-OFF- appears briefly before the display disappears.

6.7.2 Stability display

The appearance of the stability symbol **[▂▃]** on the display indicates that the weighing plate is in a stable state. If the status is instable the [▂▃] display disappears.

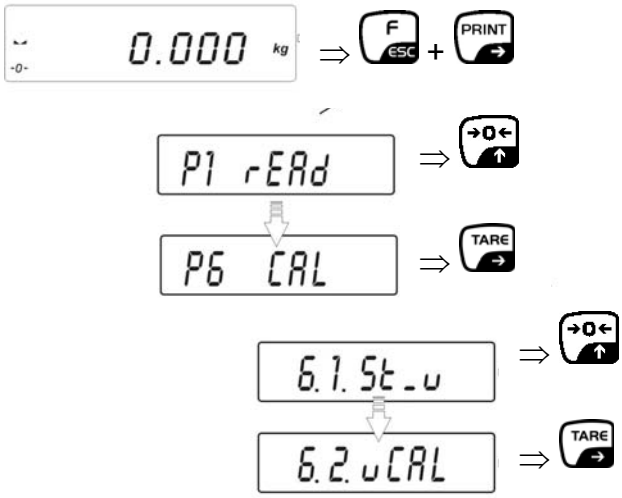
6.7.3 Balance zero display

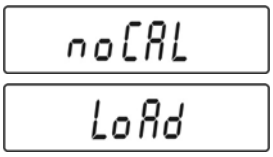
Should the balance not display exactly zero despite empty scale pan, press the  button. The balance starts with resetting to zero **[** a **] .**

7 Adjustment

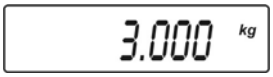
As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted 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.

Procedure when adjusting:
Adjustment should be carried out by using a recommended adjustment weight.
(See chpt. 1 “Technical specifications“):
Observe stable environmental conditions. A warm-up time of 2 hours is necessary for stabilisation.





The weight value of the required adjustment weight will pop up:

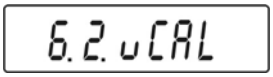


English

Models ILB:
Carefully place required adjusting weight in the centre of the weighing plate. **CAL** appears on the display, adjustment is automatically started.
Models PLB:
Place the required calibration weight carefully in the centre of the weighing plate and press the **PRINT** key. **CAL** appears on the display, adjustment is automatically started.

Once the adjustment has been completed, **unLoAd** will appear in the display

Take away adjustment weight



- **Return to weighing mode**

Press the F/ESC button repeatedly until the "**SAVE**"? inquiry appears.
Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.
-or-

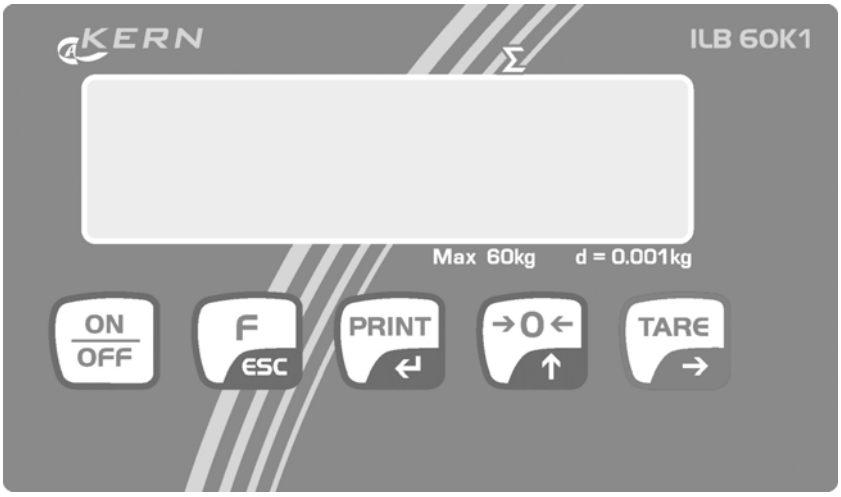
press the F/ESC button to return to Weighing mode without saving.

8 Operating elements

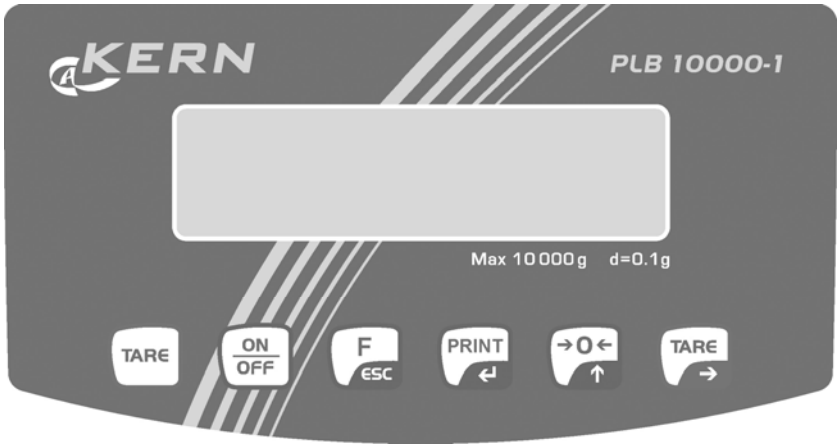
8.1 Backlit display

Very contrastful display which can also be red in the darkness.

KERN ILB:



KERN PLB:



8.2 Keyboard overview

Key	Function in Operating mode
ON OFF	• Switch machine on/off
F ESC	• Function key
→0←	• Set balance to zero
PRINT	• Data output
TARE	• Tare balance

English

8.3 Overview of display

No.	Display	Description
1.	**FIL**	Filter setting
2.	**bAud**	RS 232 interface speed
3.	**HiLo**	+/- tolerance with respect to reference weight
4.	**rEPL**	Automatic display printout
5.	**StAb**	Printing will be started as soon as the stability display appears
6.	**Auto**	Monitoring weight display at 0
7.	**t1**	Automatic cutout
8.	**toP**	Maximum weight storage
9.	**Add**	Totalising symbol
10.	**AnLs**	Symbol for animal weighing function
11.	**tArE**	Symbol for PRE-TARE function (pre-tare deduction)
12.	**→0←**	Balance zero display
13.	**[▂▃▅]**	Stability display
14.	**PCS**	Symbol for "Piece-counting" mode
15.	**g (kg)**	Symbol for "Weighing" mode
16.		Battery very low.
17.	**Net**	Tara symbol
18.		+/- tolerance with respect to reference weight entry of lower limit or weight below tolerance
19.		+/- tolerance with respect to reference weight within prescribed limits
20.		+/- tolerance with respect to reference weight entry of upper limit or weight above tolerance

English

9 The menu

The individual elements of the Menu system (Main menu, Submenu and Settings) are displayed with a P Number and an abbreviation.
The number abbreviations for the menus can be found in the List of Menu Functions below.

9.1 List of Menu Functions

P1 rEAd	**[Basic settings, see chap. 11]**		
P1.1	FiL	2	Filter settings
P1.2	Auto	YES	Auto Zero
P1.3	tArA	no	Tare function
P1.4	Fnnd	no	Median Filter
P2 Prnt	**[RS 232 Parameter, see chap. 14.2]**		
P2.1	Pr_n	StAb	Setting data output type
P2.2	S_Lo		Entering minimum weight
P2.3	bAud	9600	Setting baud rate
P2.4	S_rS	8d1SnP	Setting transmission parameter
P3 Unit	**[Weighing units, see chap. 10.4]**		
P3.1	StUn	kg	Setting standard weighing unit
P4 Func	**[Operating modes, see chap. 13]**		
P4.1	FFun	ALL	selection enabled operating modes
P4.2	Funi	No	Weighing units switch-over
P4.3	PcS	No	Parts counting
P4.4	HiLo	No	Tolerance weighing
P4.5	PrcA	No	Percentage weighing (by means of weighing)
P4.6	Prcb	No	Percentage weighing (by manual entry)
P4.7	AtAr	No	Automatic taring
P4.8	toP	No	Peak value function
P4.9	Add	No	Adding
P4.A	AnLS	No	Animal weighing
P4.b	tArE	No	PRE-TARE
P5 othr	**[Further useful functions, see chap. 12]**		
P5.1	bL	Auto	Display background illumination
P5.2	bLbt	50	Intensity of backlighting
P5.3	bEEP	YES	Key sound
P5.4	t1	no	AUTO-OFF
P5.5	CHr6	no	Rechargeable battery charging function switch-off
P6 CAL	**[Adjustment, see chap. 7]**		
P6.1	St_u		not documented
P6.2	uCAL		Adjustment

English

9.2 Navigation in the menu

Keyboard overview in menu:

Key	Function in Menu
F ESC + PRINT	• Access to Main menu
→0← + TARE	• Numeric entering of tara weight • Scroll back
→0←	• Menu selection • Changing parameter value • Increase in the numerical value of a figure by "1"
TARE	• Submenu/Parameter call-up • Shift and select number to be changed to the right
PRINT	• Confirm/save settings
F ESC	• Quit function without changing the settings • Back to menu

Storing / jumping back to weighing mode

Any changes made in the balance memory will only be saved when the storing process is complete.

To achieve this, press the F ESC key several times until **"SAVE"?** appears.

Any changes carried out are stored by pressing the PRINT key.

To cancel changes, press the F ESC key.
Afterwards the balance automatically jumps back to weighing mode.

10 Basic Operation

10.1 Switching on/off

Start-up Press ON/OFF for approx. 0.5 sec.
The balance will carry out a self-test The balance is ready for weighing when the weight display appears.

Switching Off Press ON/OFF for approx. 0.5 sec.
-OFF- appears briefly before the display disappears.

10.1.1 Stability display

The appearance of the stability symbol **[▂▃]** on the display indicates that the weighing plate is in a stable state. If the status is instable the **[▂▃]** display disappears.

10.1.2 Balance zero display

Should the balance not display exactly zero despite empty balance pan, wait for stability display and press the →0← button. The balance start with resetting to zero and the symbol "a" will appear.
Zeroing is only possible in the range ± 2% MAX (Err2).

10.2 Simple weighing

1. Place goods to be weighed on balance
2. Wait until the stability display appears **[▂▃]**
3. Read weighing result

10.3 Switching over weighing range (only at multiple range balances)

If during measurement the lower max. weighing range is exceeded, the balance will change automatically into the upper range. Left above in the display appears the pictogram →**2**←.
After having concluded the weighing operation, the balance will change automatically into the lower range. According to weighing range, readability changes, see chap. „Technical data“.

10.4 Weighing with taring

The dead weight of any weighing container may be tared away by pressing a button or by numerical input, so that the following weighings show the net weight of the goods to be weighed.

English

10.4.1 Taring

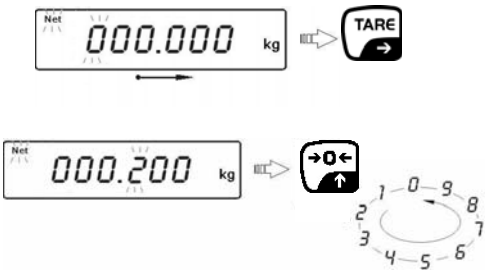
⇨ Put on weighing receptacles and press TARE. The zero display and the symbol **Net** will appear.
The tare weight is saved until it is deleted.
Information:
The tare procedure can be repeated as many times as necessary, for example with initial weighing of several components for a mix (add-on weighing). The limit is reached when the total weighing range capacity is full. After removing the taring container the total weight is displayed as negative display.
Taring is not possible with negative display values or zero display (Err3).

10.4.2 Delete tare

⇨ Unload balance and press the →0← button.
The **Net** symbol goes out and the zero display appears.

10.4.3 Numerical input of tare (PRE-TARE)

⇨ In Weighing mode press simultaneously the →0← and TARE button.



⇨ Select the point to be changed by pressing the TARE button and the number by pressing the →0← button and the active point flashes in each case.

⇨ Confirm with PRINT button. The input weight is automatically saved as tare weight, the **Net** symbol and the tare weight with minus sign will appear.

⇨ Place the filled receptacles on the balance. The net weight will appear in the display.

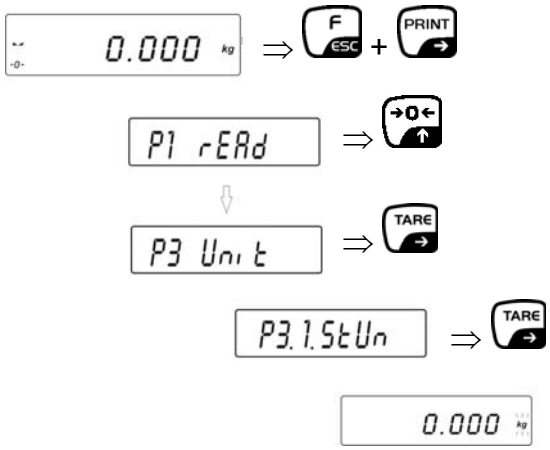
Note:
The balance can save up to 10 PRE-TARE values, see chap. 13.9

Delete tare:

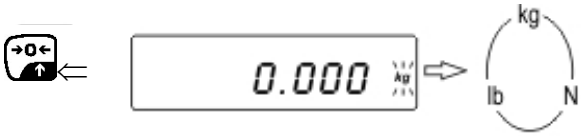
⇨ Press →0← button. The **Net** symbol goes out, the zero display appears.

10.5 Standard weighing unit

Selected weighing unit will be retained even after disconnection from the mains.

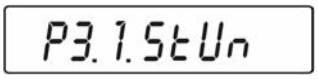


⇨ Press the →0← button again; the currently set weighing unit is flashing



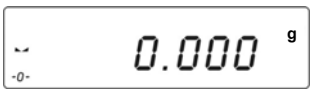
⇨ Press →0← button as often as necessary until the required weighing unit appears (see chap. 1 „Technical data“)

The balance returns to menu.



⇨ Press the F ESC button repeatedly until "**SAVE**"? appears.

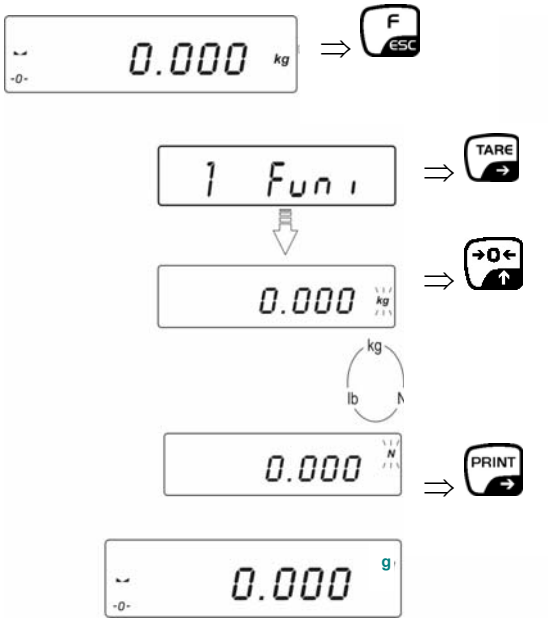
Save changes by pressing the PRINT button.
The balance returns to weighing mode; the display show the set weighing unit.
The set weighing unit remains even after disconnection from the mains.



English

10.6 Temporary weighing unit switching (P4.2Funi)

The weight unit selected as follows does not remain after disconnection from the mains.
Condition: Function "P4.2 Funi" activated (yes).



English

11 Menu function "P1 rEAd" basic settings

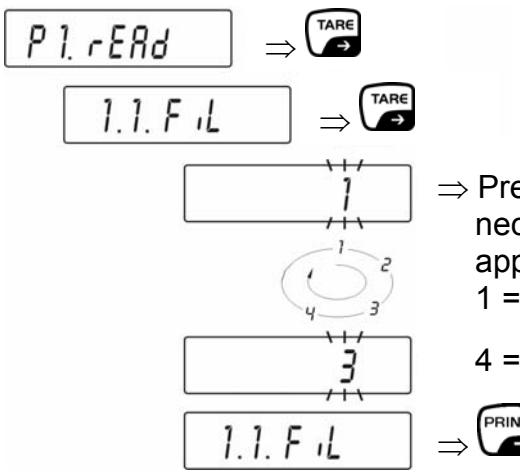
Basic settings can be changed and functions activated in Menu "P1 rEAd". It is now possible to change individual weighing requirements.

11.1 Filter settings

This menu item allows the balance to be set according to specific ambient conditions and measuring purposes.

Call up menu:

⇨ Press the F + PRINT button simultaneously, "**P1 rEAd**" will appear



⇒ Press the →0← button as often as necessary until the required setting appears:
1 = sensitive and fast
↓
4 = insensitive but slow

⇨ Press the F button repeatedly until the "**SAVE**"? inquiry appears.

Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

-or-

press the F button to return to Weighing mode without saving.

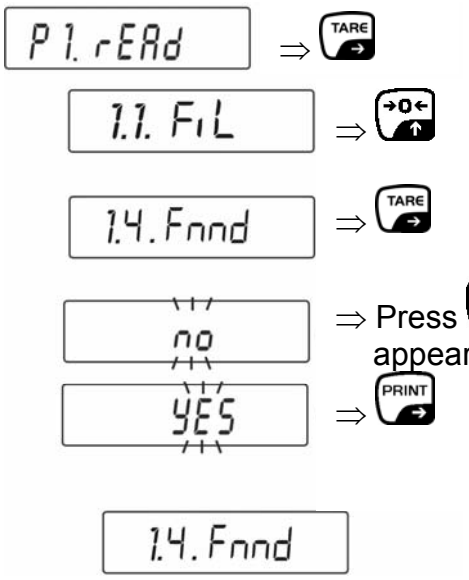
English

11.2 Median Filter

Especially useful in case of impacts or shocks (average value formation).

Call up menu:

⇨ Press the F ESC + PRINT button simultaneously, "**P1 rEAd**" will appear



⇨ Press the F ESC button repeatedly until the "**SAVE**"? inquiry appears.

Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

-or-

press the F ESC button to return to Weighing mode without saving.

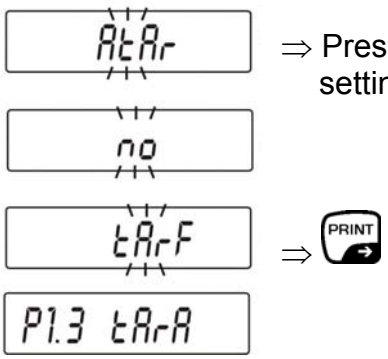
English

11.3 Auto-Zero – Automatic Zeroing

This function is used to tare small variations in weight automatically.
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. (e.g. slow flow of liquids from a container placed on the balance, evaporating processes).
When apportioning involves small variations of weight, it is advisable to switch off this function.

Call up menu:

⇨ Press the F esc + PRINT button simultaneously, "**P1 rEAd**" will appear



⇒ Press →0← repeatedly until the wanted setting appears (no = off, yes = on)

⇨ Press the F esc button repeatedly until the "**SAVE**"? inquiry appears.

Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

-or-

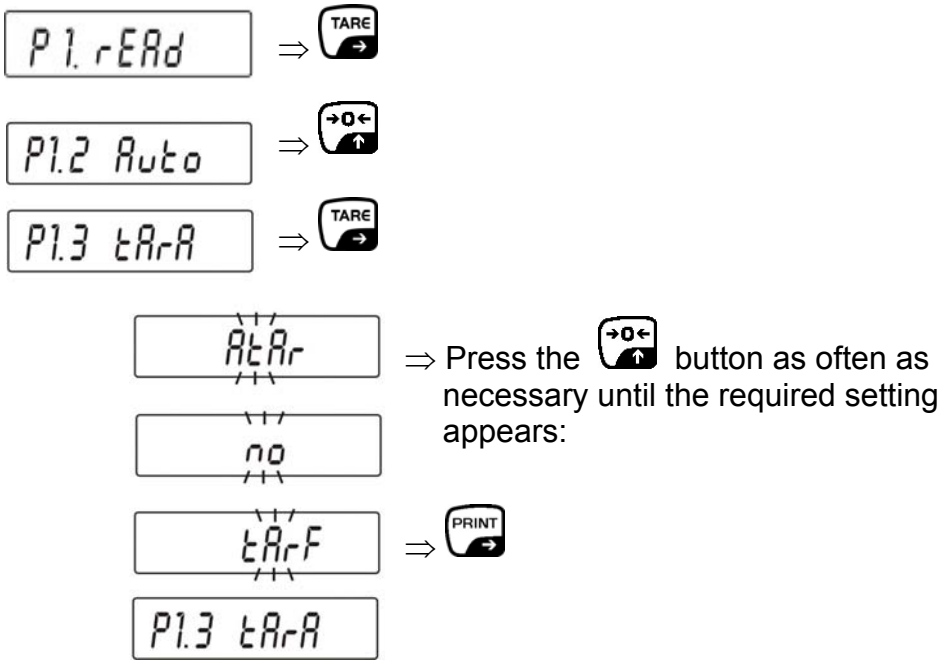
press the F esc button to return to Weighing mode without saving.

11.4 Tare function

The following tare functions can be set with this function:

AtAr **Automatic Taring switched on** remains saved even after disconnection from the mains (For specification see chap. 13.5)
no **Automatic Taring switched off**
tArF **The last tare value is saved** and remains saved even after disconnection from the mains. This appears as a minus value with the **NET** symbol when the balance is switched on.

⇨ Press the F/ESC + PRINT button simultaneously, "**P1 rEAd**" will appear



⇒ Press the →0← button as often as necessary until the required setting appears:

⇨ Press the F/ESC button repeatedly until the "**SAVE**"? inquiry appears.

Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

-or-

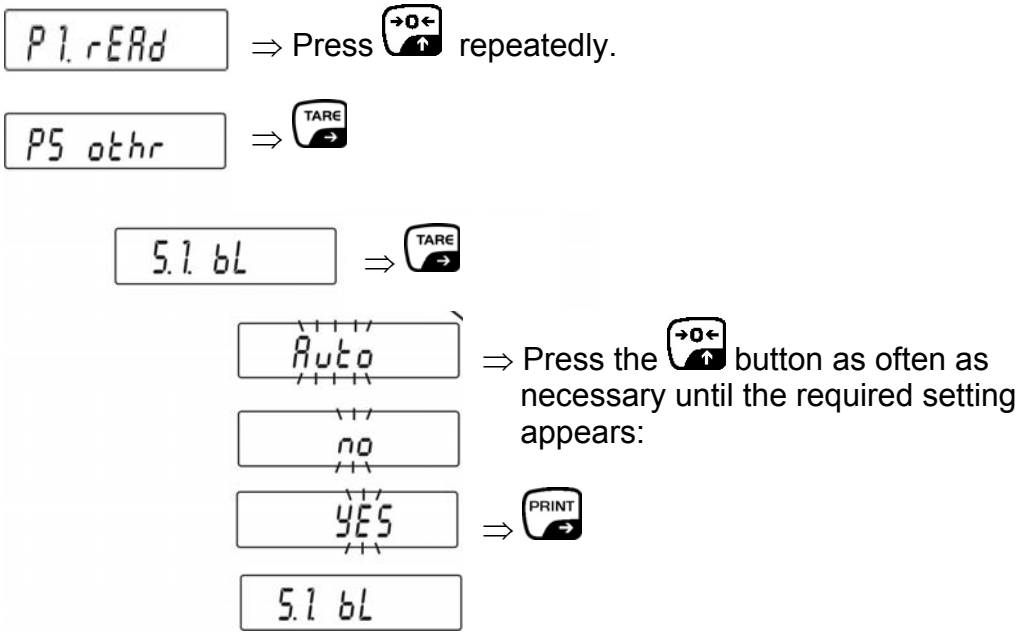
press the F/ESC button to return to Weighing mode without saving.

12 Menu function "P5 Othr" - Further useful functions

Here, you can set the parameters that influence the operation of the balance, such as background lighting and key sounds.

12.1 Display background illumination

⇨ Press the F + PRINT button simultaneously, "**P1 rEAd**" will appear



no = Background illumination on
yes = Background illumination off
Auto The background illumination will be switched off automatically 10 sec after having reached a stable weighing value.

⇨ Press the F button repeatedly until the "**SAVE**"? inquiry appears.

Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

-or-

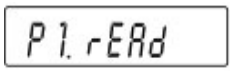
press the F button to return to Weighing mode without saving.

English

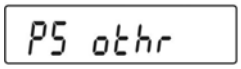
12.2 Intensity of backlighting

To optimize readability and energy consumption, the intensity of the background lighting can be adjusted from 0 to 100%. Low intensity prolongs battery life.

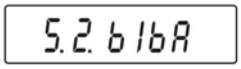
⇨ Press the F/ESC + PRINT button simultaneously, "**P1 rEAd**" will appear



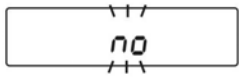
⇒ Press →0← repeatedly.



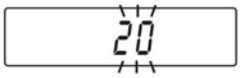
⇒ TARE

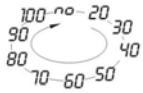


⇒ TARE

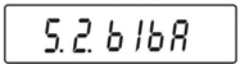


⇒ Press the →0← button as often as necessary until the required setting appears:





⇒ PRINT



⇨ Press the F/ESC button repeatedly until the "**SAVE**"? inquiry appears.

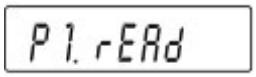
Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

-or-

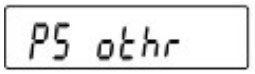
press the F/ESC button to return to Weighing mode without saving.

12.3 Acoustic signal when button is pressed

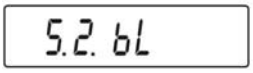
⇨ Press the F/ESC + PRINT button simultaneously, "**P1 rEAd**" will appear



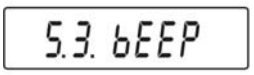
⇒ Press →0← repeatedly.



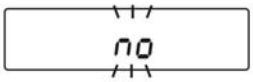
⇒ TARE



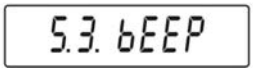
⇒ →0←



⇒ TARE



⇒ Press the →0← button as often as necessary until the required setting appears (no = off, yes = on)



⇒ PRINT

⇨ Press the F/ESC button repeatedly until the "**SAVE**"? inquiry appears.

Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

-or-

press the F/ESC button to return to Weighing mode without saving.

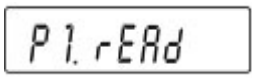
English

12.4 AUTO-OFF - Automatic switching-off

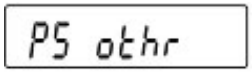
If the AUTO-OFF function is activated, the balance switches off automatically to save the rechargeable batteries after 5 minutes without load change.

Adjustment	Function	
	Mains power supply	Battery power supply
t1 = no	deactivated	deactivated
t1 = YES	activated	activated
t1 = Auto	deactivated	activated

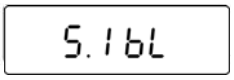
⇨ Press the F ESC + PRINT button simultaneously, "**P1 rEAd**" will appear



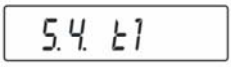
⇒ Press →0← repeatedly.



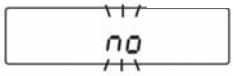
⇒ TARE



⇒ Press →0← repeatedly.

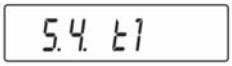


⇒ TARE



⇒ Press the →0← button as often as necessary until the required setting appears:

⇒ PRINT



⇨ Press the F ESC button repeatedly until the "**SAVE**"? inquiry appears.

Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

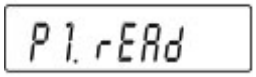
-or-

press the F ESC button to return to Weighing mode without saving.

12.5 Rechargeable battery charging options

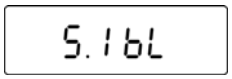
When using non-rechargeable batteries, the rechargeable battery charging function "**5.5 cHr6**" must be set to "**no**" with this function. There is risk of explosion in the event of non-compliance.

⇨ Press the F/ESC + PRINT buttons simultaneously, "**P1 rEAd**" will appear

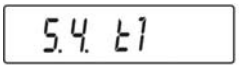


⇒ Press →0← repeatedly.

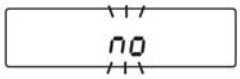
⇒ TARE



⇒ Press →0← repeatedly.



⇒ TARE



⇒ Press the →0← button as often as necessary until the required setting appears:

⇒ PRINT

no Rechargeable battery charging function switched off, the rechargeable battery charging symbol will not pop up. "bAtt" appears when the balance is switched on.

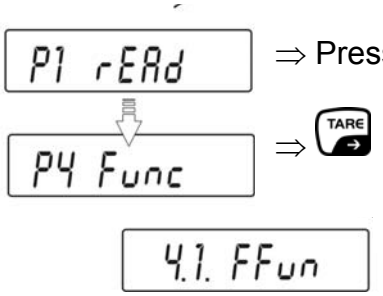
YES Rechargeable battery charging function switched on. This symbol will pop up every 2 seconds during the charging process. "nImh" (NiMH R6 rechargeable batteries) will appear when the balance is switched on.

English

13 Menu function "P4 Func" - Operating modes

Functions can be selected in Menu **"4.1.FFun"**, which are then made available to the operator without having to access the menu every time. All activated operating modes can be called directly by pressing the F button. Menu activation:

⇒ Press buttons F + PRINT at the same time

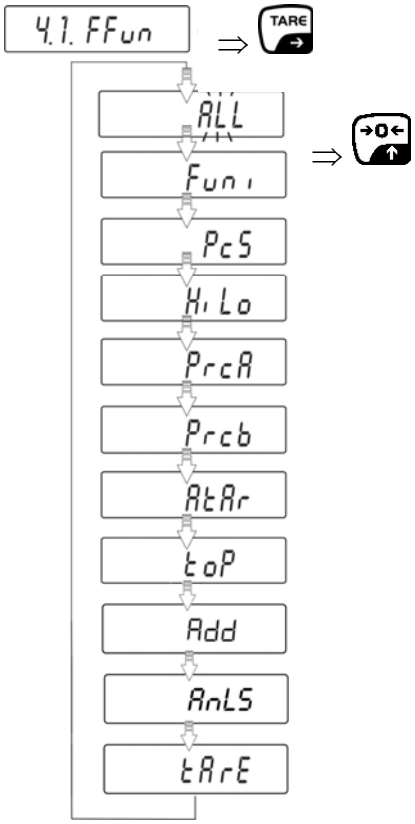


⇒ →0← repeatedly.

⇒ TARE

A function can only be activated directly in Menu **"4.1.FFun"**.

- If it should only be possible to call up one Operating mode by pressing the F button, simply select the required function by pressing the →0← button and confirm by pressing the PRINT button.
- If it should be possible to call up several Operating modes by pressing the F button, select the **"ALL"** function by pressing the →0← button and confirm by pressing the PRINT button. The selection as to which Operating modes are deposited in **"ALL"** is made in the next chapter 13.1.



⇒ TARE

⇒ →0←

English

⇨ Confirm settings by pressing the PRINT button. Balance jumps back to sub-menu **4.1.FFun**.

Return to weighing mode:

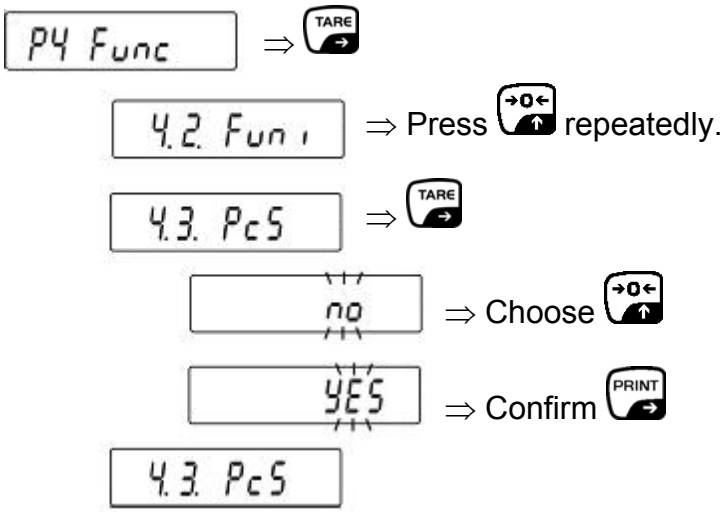
⇨ Press the F esc button repeatedly until the "**SAVE**"? inquiry appears.

Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.
-or-

press the F esc button to return to Weighing mode without saving.

13.1 Settings for Function P4.1 FFun "ALL"

The selection of the menu items, which can then be called up by pressing the F esc button, is made at this point.



no = Function deactivated

YES = Function activated

Please repeat this sequence of operations for any other operating mode available.

Return to weighing mode:

⇨ Press the F esc button repeatedly until the "**SAVE**"? inquiry appears.

Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

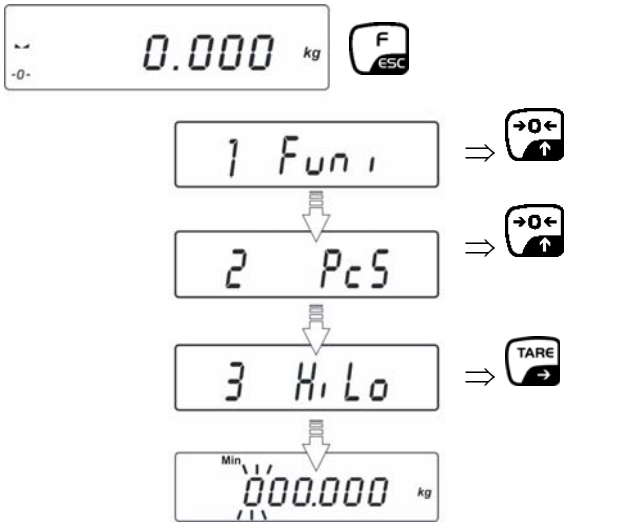
-or-

press the F esc button to return to Weighing mode without saving.

⇨ All activated operating modes can now be called up in Weighing mode by pressing the F/ESC button.

Example of call-up of Tolerance weighing function:

Press the F/ESC button in Weighing mode and the initial activated function will appear:

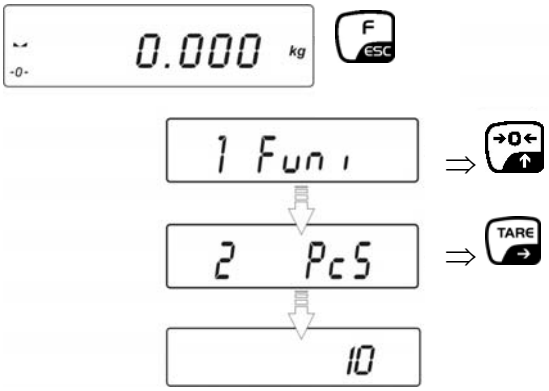


Back to Weighing mode with F/ESC.

13.2 Quantities (Function P4.3 PcS)

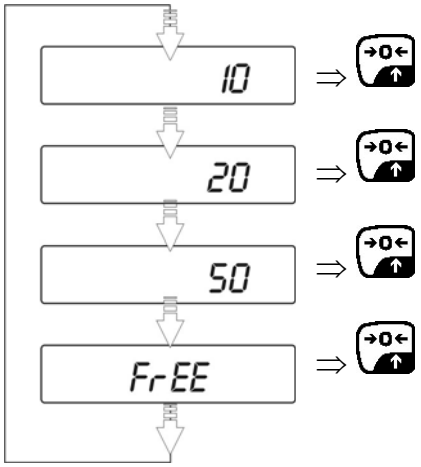
Before the balance can count parts, it must know the average part weight (i.e. reference). Proceed by putting on a certain number of the parts to be counted. The balance determines the total weight and divides it by the number of parts, the so-called reference quantity. Counting is then carried out on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

- **Call add-up function**



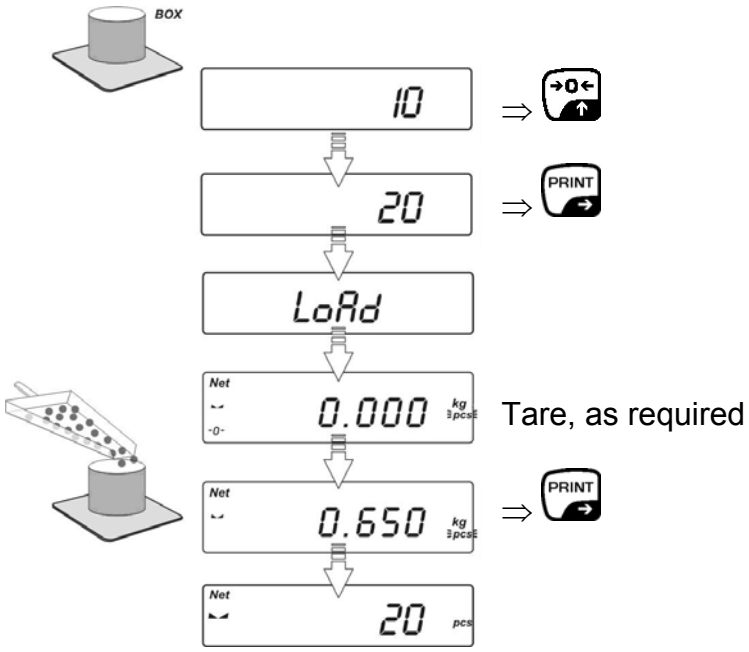
Select the required reference quantity by pressing the button.

- **Reference piece number 10, 20 or 50**



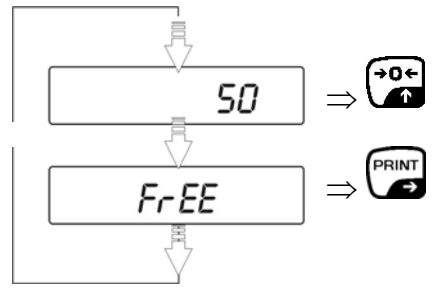
Confirm selected reference quantity (e.g. 20) by pressing the button.

- **Make reference**
  Place as many pieces to add-up as required by the set reference piece number.

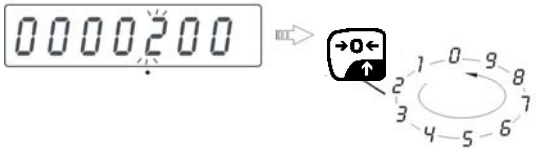


  Remove reference weight. The balance is now in parts counting mode counting all units on the weighing plate.

- **for selection ”optional reference piece number“ FrEE**

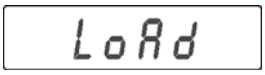


  – Select the point to be changed by pressing the TARE button.



  – Select the figure by pressing the button

- Confirm input reference quantity by pressing the PRINT button
- "LoAd" appears on the display.



- Place as many counting parts on the balance as the set reference quantity requires, confirm by pressing the PRINT button.

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

- **Return to weighing mode**

  Press F esc button repeatedly

Information:

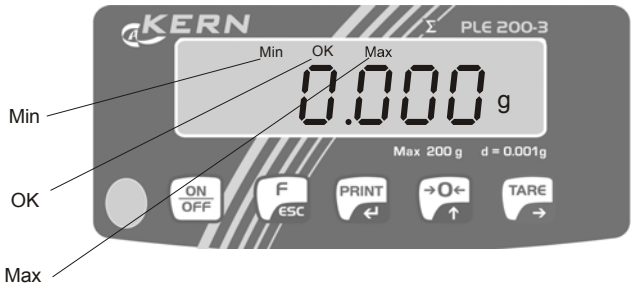
If there is no load on the weighing plate when the PRINT-button is pressed, "**Er5 outr**" will appear briefly on the display before the display of the balance returns automatically to weighing mode.
If the unit weight is smaller than the readout (d), error message **-Err5-** will appear and the balance display will return automatically to Weighing mode.

13.3 Weighing with tolerance range (Function P4.4 HiLo)

For weighing with tolerance ranges you can enter individual upper and lower limits. For tolerance controls such as dosaging, apportioning or sorting the scale will display violated upper or lower limits and show the tolerance tag.

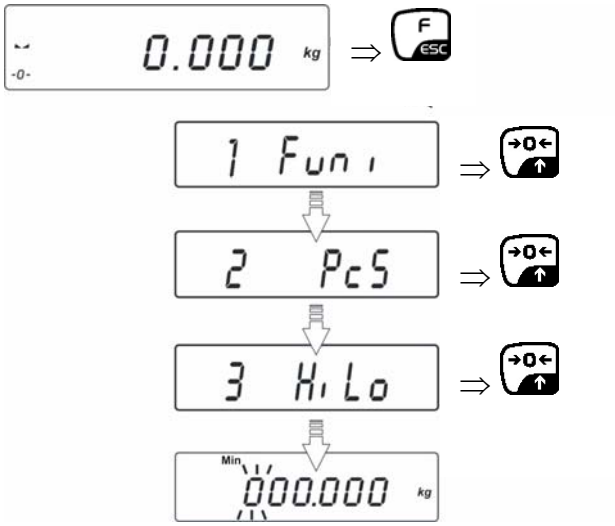
The tolerance marks (Min, Ok, Max) in the top section of the display indicate whether the goods to be weighed are within the two tolerance limits.
The tolerance markers are only in operation during operating mode tolerance weighing; they are otherwise not visible.

The tolerance marker provides the following information:

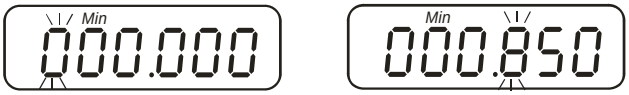


Min	Goods to be weighed below tolerance limit
Ok	Goods to be weighed within tolerance range
Max	Goods to be weighed above tolerance limit

- **Call function**

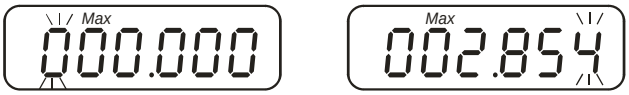


- **Set lower tolerance limit "Min"**

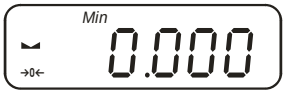


  - Select the point to be changed by pressing the TARE button and the active point flashes in each case.
  - Select the figure by pressing the →0← button
  - Confirm the input lower tolerance limit by pressing the PRINT button

- **Set the upper tolerance limit "Max"**



  - Select the point to be changed by pressing the TARE button and the active point flashes in each case.
  - Select the figure by pressing the →0← button
  - Confirm the input upper tolerance limit by pressing the PRINT button



The balance is now in checkweighing mode Put on goods to be weighed, tolerance control is started

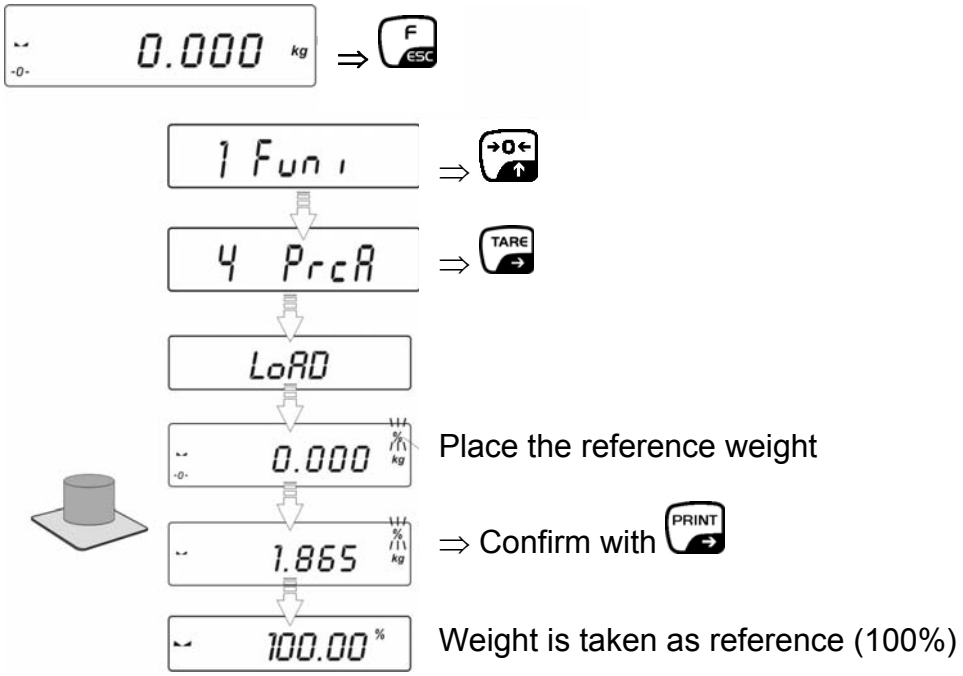
- **Return to weighing mode**
  Press F esc button repeatedly

Information:
If invalid values are entered such as lower tolerance limit greater than upper tolerance limit, the balance will issue the error message (**-lo-**) and return automatically to weighing mode.

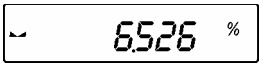
13.4 Percentage calculation (Functions P4.5 PrcA/ P4.6 Prcb)

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

13.4.1 Calculation of reference weight by weighing (P4.5 PrcA)

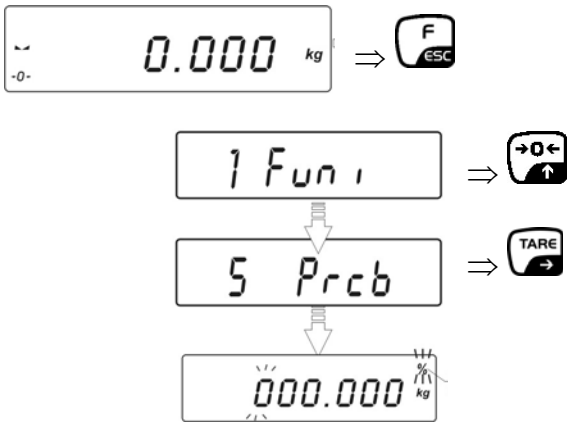


Remove reference weight. The balance is now in percent determining mode
Place the load on the balance; percentage value in relation to reference body is shown on display:



13.4.2 Numerical input of the reference weight (P4.6 Prcb)

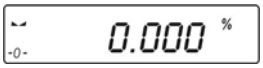
- **Call function**



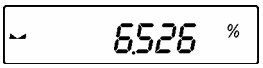
- **Make reference**
  - You will be asked to enter the reference weight by a flashing message.

  - Select the point to be changed by pressing the TARE button and the active point flashes in each case.

  - Select the figure by pressing the →0← button
  - Confirm the input reference weight by pressing the PRINT button



The balance is now in percent determining mode Place the load on the balance; percentage value in relation to reference body is shown on display:



- **Return to weighing mode**

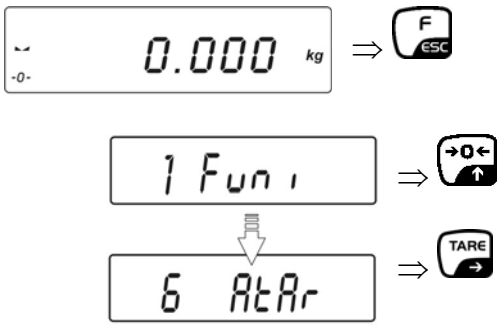
  Press repeatedly F ESC button

English

13.5 Automatic Taring (Function P4.7 AtAr

This function is to be used for faster calculation of the net weight, in case the tare load changes for each weighing.

- **Call function**



1. Deposit weighing receptacles
2. The receptacle weight is automatically saved as tare weight, the zero display and NET symbol will appear
3. Weigh goods and read result
4. Remove goods and receptacle
5. Deposit next weighing receptacle and repeat Steps 2 - 4.

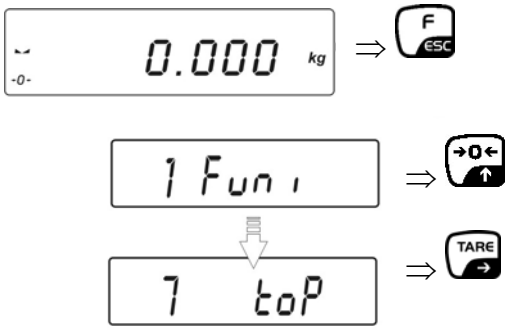
- **Return to weighing mode**

  Press F ESC button repeatedly

Note:
Ensure that the input of the minimum weight (For setting see chap. 14.2.3) is smaller than the weight of the weighing receptacle otherwise the weighing receptacle will not be tared automatically.

13.6 Peak value function (P4.8 toP)

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



The balance is not in Peak value mode and the **"Max"** symbol pops up.

⇨ Load weighing plate. The maximum load value is displayed.

⇨ The peak value remains in the display until the  button is pressed. Then the balance is ready for further measurements.

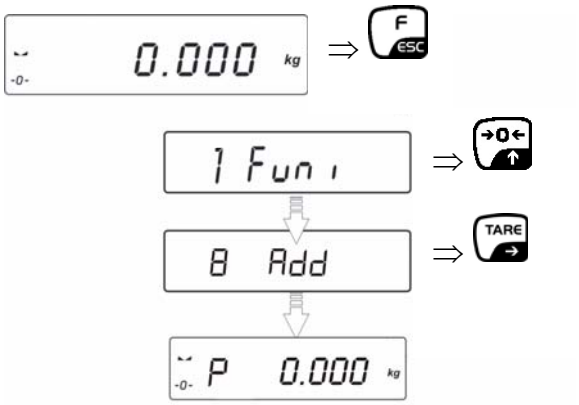
- **Return to weighing mode**

  Press  button repeatedly.

13.7 Totalising of display values (Function P4.9 Add)

Any number or individual weighings are automatically added to a total, e.g. all individual weighings of a batch.
When the standstill control (▬) is complete the weighing value is automatically issued to the optional printer. The displayed value is added into the total adding memory. Afterwards automatic taring will take place. This is repeated newly every subsequent time a new sample is placed on the balance. When the last single weighing process is finished, press the [ON/OFF] key to receive the total sum ("TOTAL=").

- **Call function**



⇨ Deposit weight **A**

⇨ After successful stop check (▬) press the PRINT button. The display value is added to the totalising memory (Symbol "▲" pops up top right) and output to the optional printer.

⇨ Remove weight and the balance returns to zero

⇨ Put on weight **B**

⇨ After successful stop check (▬) press the PRINT button. The total of both weighing processes appears (Symbol "▲" pops up top right) The result is output to the optional printer.

⇨ Add and weigh more parts if needed as described above. Please note that the balance must be unloaded between the individual weighing procedures. This process can be repeated as often as necessary until the display range of the balance is exhausted (Display "5-FULL").

⇨ Upon completion of the last individual weighing process, the total (TOTAL) of all the weighing processes will be output to the optional printer by pressing the PRINT button once more.

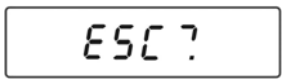
(1)	1912 kg
(2)	1912 kg
TOTAL:	3824 kg

If **"P"** pops up in the display after pressing the PRINT button, the balance is ready for a further totalising process.

If "**unLoAd**" pops up in the display after pressing the PRINT button, unload the weighing plate and wait for the zero display with symbol **"P"**. Then the balance is ready for a further totalising process.

- **Return to weighing mode**

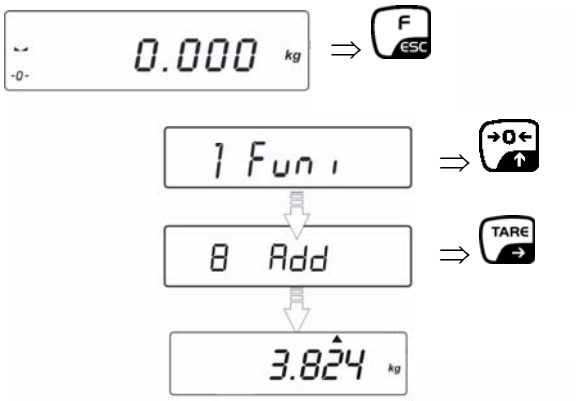
  Press the F ESC button and **ESC** appears,



  Press the PRINT button to return to Weighing mode or press the F ESC button to return to Totalising mode.

13.7.1 Call-up of last saved display value

In the event of disruption to the totalising process e.g. by disconnection from the mains, the last saved display value can be called up as follows:

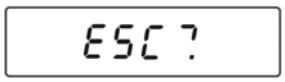


If **"P"** pops up in the display after pressing the PRINT button, the balance is ready for a further totalising process.

If "**unLoAd**" pops up in the display after pressing the PRINT button, unload the weighing plate and wait for the zero display with symbol **"P"**. Then the balance is ready for a further totalising process.

- **Return to weighing mode**

  Press the F ESC button and **ESC** appears,

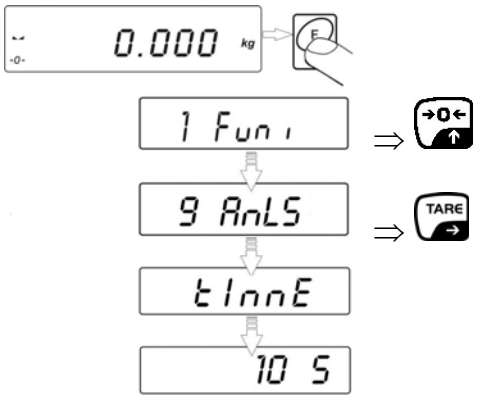


Press the PRINT button to return to Weighing mode or press the F ESC button to return to Totalising mode.

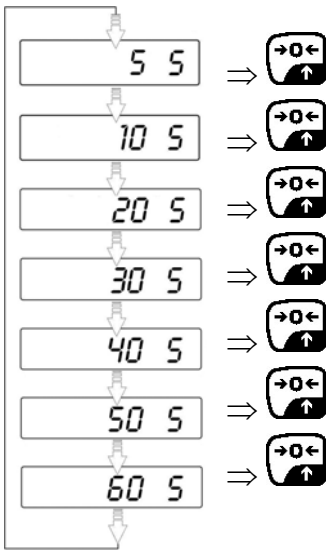
13.8 Animal weighing function (P4.A AnLS)

Use this function for weighing agitated goods (e.g. animals) or in the event of strong vibrations During a certain period of time the balance determines weight values and calculates an average.

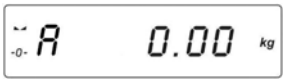
Call function



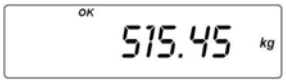
⇨ Press the →0← button to select the time span (sec) for averaging



⇨ Confirm selection by pressing the PRINT button.



⇨ Place goods to be weighed on the balance. If the minimum weight (see chap. 14.2.3) is exceeded, weighing starts automatically.
Horizontal segments appear in the display during weighing, then the result is displayed with the symbol "OK".



⇨ Remove goods from balance in order to be able to carry out a new weighing process.

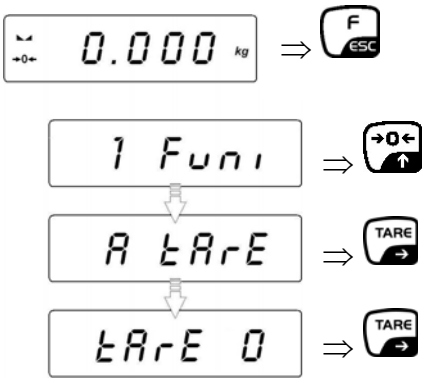
- **Return to weighing mode**

  Press F esc button repeatedly

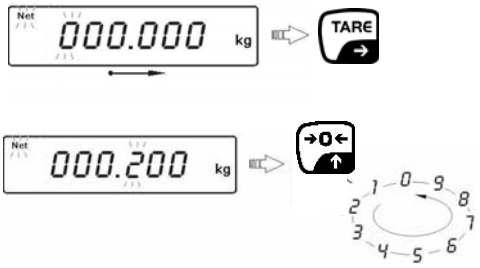
English

13.9 PRE-TARE memory (P4.b tArE)

- **Call function**



- **Input of PRE-TARE value**



⇨ Select the point to be changed by pressing the TARE button and the number by pressing the →0← button and the active point flashes in each case.

⇨ Confirm by pressing the PRINT button

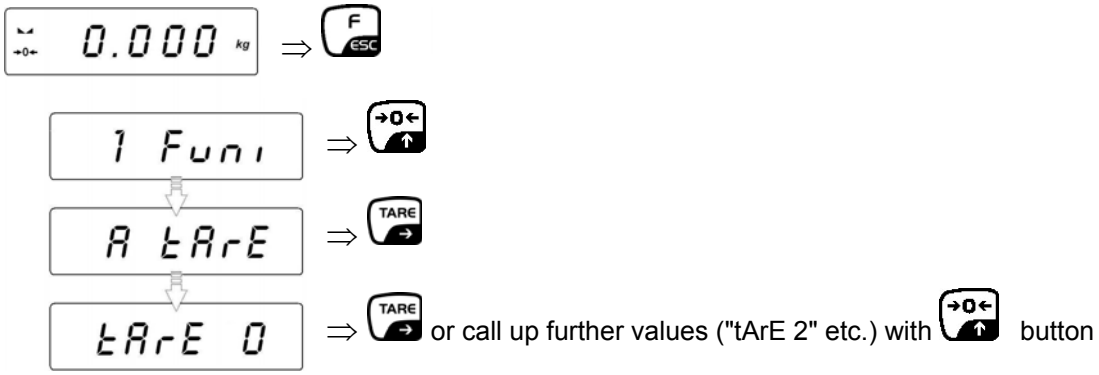
Either

⇨ Press the PRINT button again. The input weight is automatically saved as tare weight, the **Net** symbol and the tare weight with minus sign will appear.

or

⇨ Press the →0← button to enter further **PRE-TARE values** and "tArE 1" appears. Enter PRE-TARE value for "tArE 1" as described above. Further PRE-TARE values can be saved in "tArE 2" etc.

- **Call-up of PRE-TARE value**



or call up further values ("tArE 2" etc.) with button

⇨ Confirm with PRINT button. The **Net** symbol and the saved tare weight with minus sign appear.

English

14 Data output RS 232 C

Technical data:

- Baud rate -2400 - 38400 Baud
- Databits -7, 8
- Stop bits -1, 2
- Parity bit -no, even, odd
- For operation with interface faultless operation is only ensured with the correct KERN – interface cable (max. 2m)

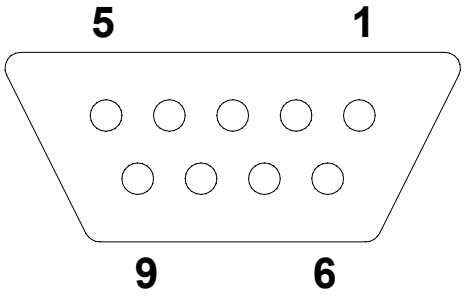
Transfer modes:

- Manually after pressing the **PRINT** key
- Continuously, according to setting
- Automatically according to stability display
- Prompted by external device (for remote control commands see chpt. 14.3)

Output conditions:

- stable – output in the event of stable weighing value
- any – sequential output by pressing the **PRINT** button (Marks in the printout: <**?**>)

14.1 Pin allocation of the balance output plug (front view)



Pin 2: Receive data
Pin 3: Transmit data
Pin 5: Signal ground

14.2 Menu function "P2 Prnt" - RS 232C Parameter

Menu overview

P2.1	Pr_n	Setting data output type
P2.2	S_Lo	Entering minimum weight
P2.3	bAud	Setting baud rate
P2.4	S_rS	Setting transmission parameter

14.2.1 Navigation in the menu

⇨ Press the →0← and TARE buttons simultaneously in Weighing mode and the first Menu point **"P2 Prnt"** will appear

⇨ Press the TARE button and "**P2 Prnt**" will appear

⇨ Confirm by pressing the TARE button and the first submenu "**2.1 Pr_n"** will appear

⇨ For further selection press the →0← button until the required setting appears
2.1 Pr_n →2.2 S_Lo →2.2 Pr_n → 2.3 bAud →P2.4 S_rS

⇨ Press the TARE button and the current setting will flash

⇨ Press the →0← button until the required setting appears

⇨ Confirm setting with PRINT. Weighing balance returns to menu. If desired, carry out settings for further menu items as described above.

Return to weighing mode

⇨ Press the F ESC button repeatedly until the "**SAVE**"? inquiry appears.

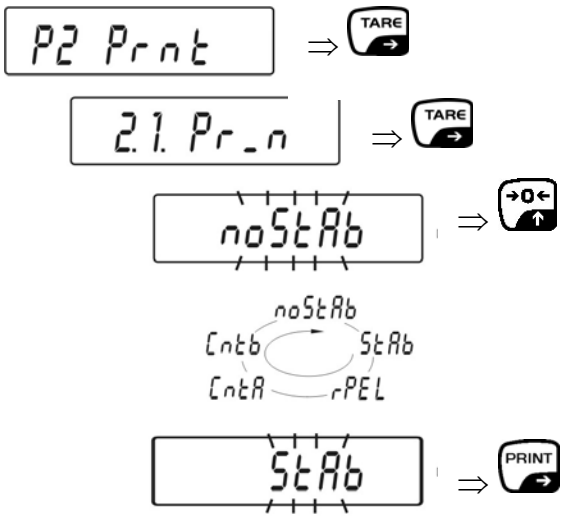
Confirm the inquiry by pressing the PRINT button to save the changes and to return to Weighing mode.

-or-

press the F ESC button to return to Weighing mode without saving.

English

14.2.2 Setting for data output type "P2.1 Pr_n"



noStAb	immediate data output, even if not stable (PRINT key)
StAb	Data output for stable weighing value (PRINT key)
rEPL	Automatic output function (See chpt. 14.2.3)
CntA	continuous output in standard weighing unit
Cntb	continuous output in current weighing unit

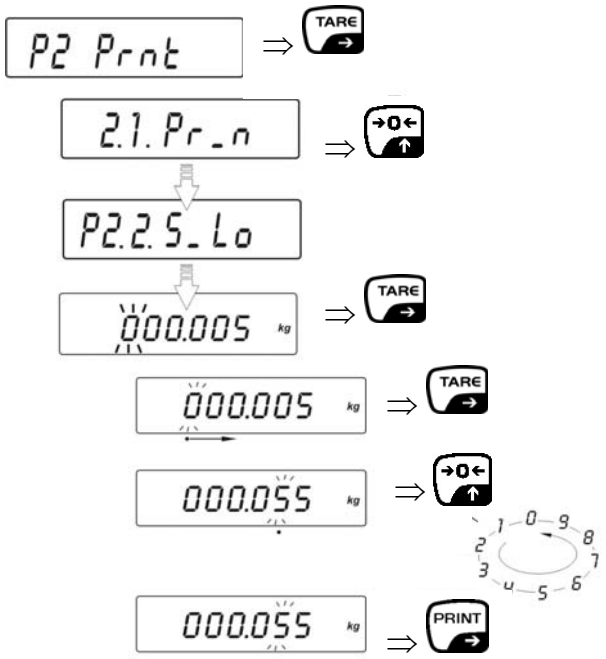
14.2.3 Input of minimum weight "P2.2 S_Lo"

The minimum weight affects the following functions:

Automatic taring (chap.13.5):
In order to apply this function, the weight of the weighing plate must have dropped below the entered weighing value first, before another greater weight can be tared automatically.

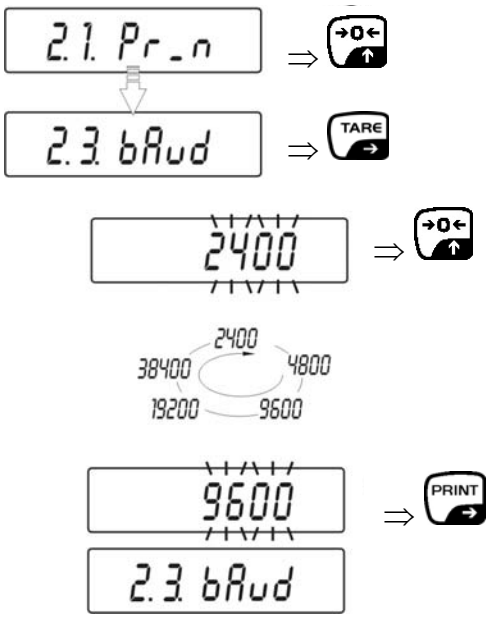
Automatic output function "rEPL" (chap. 14.2.2):
If the current weighing value exceeds the entered weighing value, a weighing value will be issued automatically. The next weighing value will not be issued unless the weighing value has meanwhile dropped below the entered weighing value.

For animal weighing see chap. 13.8
If the minimum weight is exceeded, weighing starts automatically.

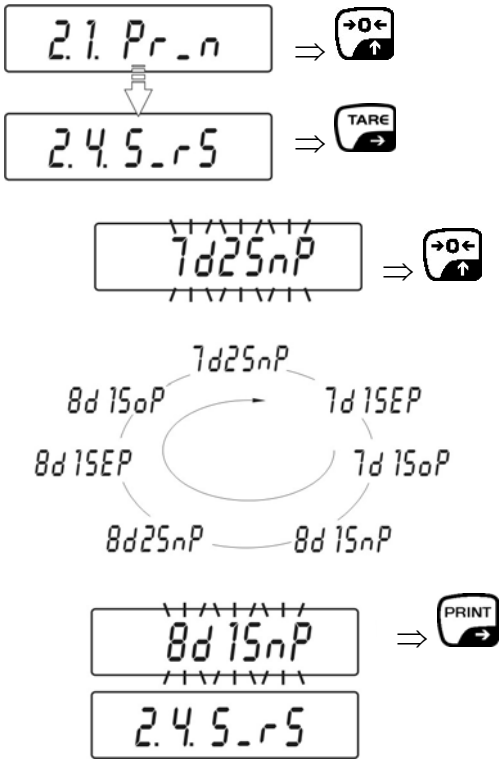


English

14.2.4 Setting for Baud rate "P2.3" bAud”



14.2.5 Parameters for RS232 interface "P2.4 S_rS"



7d2SnP : 7 data bit, 2 stop bit, no parity
7d1SEP : 7 data bit, 1 stop bit, EVEN parity
7d1SoP : 7 data bit, 1 stop bit, ODD parity
8d1SnP : 8 data bit, 1 stop bit, no parity
8d2SnP : 8 data bit, 2 stop bit, no parity
8d1SEP : 8 data bit, 1 stop bit, EVEN parity
8d1SoP : 8 data bit, 1 stop bit, ODD parity

14.3 Communication protocol / remote control commands

Instruction:	Remote control instructions
Z	Set weight display at zero
T	Taring
S	Send stable weighing value in standard weighing unit
SI	Send weighing value immediately in standard weighing unit
SU	Send stable weighing value in current weighing value
SUI	Send weighing value immediately in current weighing unit
C1	Turn on continuous transmission in standard weighing unit
C0	Turn off continuous transmission in standard weighing unit
CU1	Turn on continuous transmission in current weighing unit
CO1	Turn off continuous transmission in current weighing unit
PC	Send all implemented instructions

Complete each instruction with **CR LF**.

14.3.1 Response messages from balance

Instruction:	Response messages from balance
XX_	Instruction:
XX_A CR LF	Instruction accepted; will be executed
XX_D CR LF	Instruction complete (appears after XX_A only)
XX_I CR LF	Instruction received; impossible to carry out
XX _ ^ CR LF	Instruction received but *time overflow error* occurred
XX _ v CR LF	Instruction received, but insufficient load
XX _ E CR LF	Error during execution, timeout for stable weighing value exceeded

Data record format:

1-3	4	5	6	7-15	16	17			18	19
Instruction:	Stability indicator	Blank	Signs	Weight	Blank	Unit			CR	LF

Stability indicator [blank space], if stable
[?] if not stable
[^] if overload
[v] if underload
Presign: [blank space] if positive
[-] if negative
Weight: 9 signs, right justified
Unit: 3 signs, left justified
Instruction: 3 signs, left justified

14.4 Manual output

The user can start output manually by pressing the **PRINT**-key (for settings see chapter 14.2.2).

Data record format:

1	2	3	4 - 12	13	14 - 16	17	18
Stability indicator	Blank	Signs	Weight	Blank	Unit	CR	LF

Stability indicator [blank space], if stable
[?] if not stable
[^] if overload
[v] if underload
Presign: [blank space] if positive
[-] if negative
Weight: 9 signs, right justified
Unit: 3 signs, left justified

14.5 Continuous output

The balance may be operated in a mode enabling continuous output of weighing result. This mode can be turned on/off by commands via RS232. (For settings see chap. 14.2.2).

- **C1 CR LF** - Continuous transfer in standard weighing unit on
- **C0 CR LF** - Continuous transfer in standard weighing unit off

Data record format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	I	Blank	Stability indicator	Blank	Signs	Weight	Blank	Unit			CR	LF

- **CU1 CR LF** - Continuous transfer in current weighing unit on
- **CU0 CR LF** - Continuous transfer in current weighing unit off

Data record format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	I	Stability indicator	Blank	Signs	Weight	Blank	Unit			CR	LF

Stability indicator	[blank space], if stable [?] if not stable [^] if overload [v] if underload
Presign:	[blank space] if positive [-] if negative
Weight:	9 signs, right justified
Unit:	3 signs, left justified

15 Error messages

Err2	Value outside zero range
Err3	Value outside taring range
Err4	Calibration weight outside allowable range (+-1% for calibration weight)
Err5	Piece weight smaller than readability
Err7	Disconnection time was too short (should be more than 3 seconds)
Err8	Input outside permissible range
NULL	Impossible to carry out taring / resetting
FULL2	Weighing range exceeded
LH	Initial weight error Weight of weighing plate outside allowable tolerance of 10%
5-FULL	Display range exceeded upon totalising

16 Service, maintenance, disposal

16.1 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.

16.2 Service, maintenance

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

16.3 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.

17 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.* • *(Rechargeable) batteries are inserted incorrectly or empty* • *No (rechargeable) 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 result is obviously incorrect	• *The display of the balance is not at zero* • *Adjustment is no longer correct.* • *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.