

Operating instruction Platform scale

KERN ILT

Version 1.2

04/2006

GB





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1 Technical data

KERN	ILT 12K0.1DM	ILT 30K0.2DM
<i>Readability (d)</i>	0.1/0.2 g	0.2/0.5 g
<i>Weighing range (max)</i>	6/12 kg	12/30 kg
<i>Minimum load</i>	5/10 g	10/25 g
<i>Verification value</i>	1/2 g	2/5 g
<i>Verification class</i>	II	II
<i>Reproducibility</i>	0.2/0.4 g	0.4/1 g
<i>Linearity</i>	± 0.2/0.4 g	± 0.4/1 g
<i>Recommended adjusting weight (not supplied)</i>	10 kg (F2)	20 kg (F2)
<i>Minimum piece weight for counting function</i>	> 0.1 g	> 0.2 g
<i>Stabilization time</i>	4 sec.	
<i>Weighing units (calibrated appliances)</i>	g, kg	
<i>Weighing units (non-calibrated appliances)</i>	g, kg, ct, lb, oz, ozt, dwt, t {h}, t {S}, t {t}, mom, GN, N, t, freely programmable	
<i>Reference quantities at piece counting</i>	10, 20, 50, 100, freely selectable	
<i>Weighing plate, stainless steel</i>	300 x 300 mm	
<i>Dimensions of the housing (B x D x H)</i>	300 x 300 x 75 (platform) 197 x 110 x 35 (display)	
<i>Net weight (kg)</i>	7,7	
<i>Permitted environmental condition</i>	-15° C to 30° C	
<i>Humidity of air</i>	max. 80 % relative (not condensing)	
<i>Voltage</i>	230 V/50Hz	

KERN	ILT 60K0.5DM	ILT 120K1DM
<i>Readability (d)</i>	0.5/1 g	1/2 g
<i>Weighing range (max)</i>	30/60 kg	60/120 kg
<i>Minimum load</i>	25/50 g	50/100 g
<i>Verification value</i>	5/10 g	10/20 g
<i>Verification class</i>	II	II
<i>Reproducibility</i>	1/2 g	2/4 g
<i>Linearity</i>	± 1/2 g	± 2/4 g
<i>Recommended adjusting weight (not supplied)</i>	50 kg (F2)	100 kg (F2)
<i>Minimum piece weight for counting function</i>	> 1 g	> 1 g
<i>Stabilization time</i>	4 sec.	
<i>Weighing units (calibrated appliances)</i>	g, kg	
<i>Weighing units (non-calibrated appliances)</i>	g, kg, ct, lb, oz, ozt, dwt, t {h}, t {S}, t {t}, mom, GN, N, t, freely programmable	
<i>Reference quantities at piece counting</i>	10, 20, 50, 100, freely selectable	
<i>Weighing plate, stainless steel</i>	410 x 410 mm	
<i>Dimensions of the housing (B x D x H)</i>	410 x 410 x 90 (platform) 197 x 110 x 35 (display)	
<i>Net weight (kg)</i>	13	
<i>Permitted environmental condition</i>	-15° C to 30° C	
<i>Humidity of air</i>	max. 80 % relative (not condensing)	
<i>Voltage</i>	230 V/50Hz	

2 Declaration of conformity



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Konformitätserklärung

Declaration of conformity for apparatus with CE mark

Konformitätserklärung für Geräte mit CE-Zeichen

Déclaration de conformité pour appareils portant la marque CE

Declaración de conformidad para aparatos con marca CE

Dichiarazione di conformità per apparecchi contrassegnati con la marcatura CE

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

Electronic Balance: KERN ILT

Mark applied	EU Directive	Standards
CE	89/336/EEC EMC	EN45501 EN55022
	73/23/EEC Low Voltage	EN60950

Date: 30.01.2006

Signature:

Gottl. KERN & Sohn GmbH
Management

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Konformitätserklärung

Declaration of conformity for apparatus with CE mark

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Déclaration de conformité pour appareils portant la marque CE

Declaración de conformidad para aparatos con marca CE

Dichiarazione di conformità per apparecchi contrassegnati con la marcatura CE

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

Model:	KERN ILT
---------------	-----------------

EU Directive	Standards	EC-type-approval certificate no.	Issued by
90/384/EEC	EN 45501	PL 06 001	GUM

Date: 30.01.2006

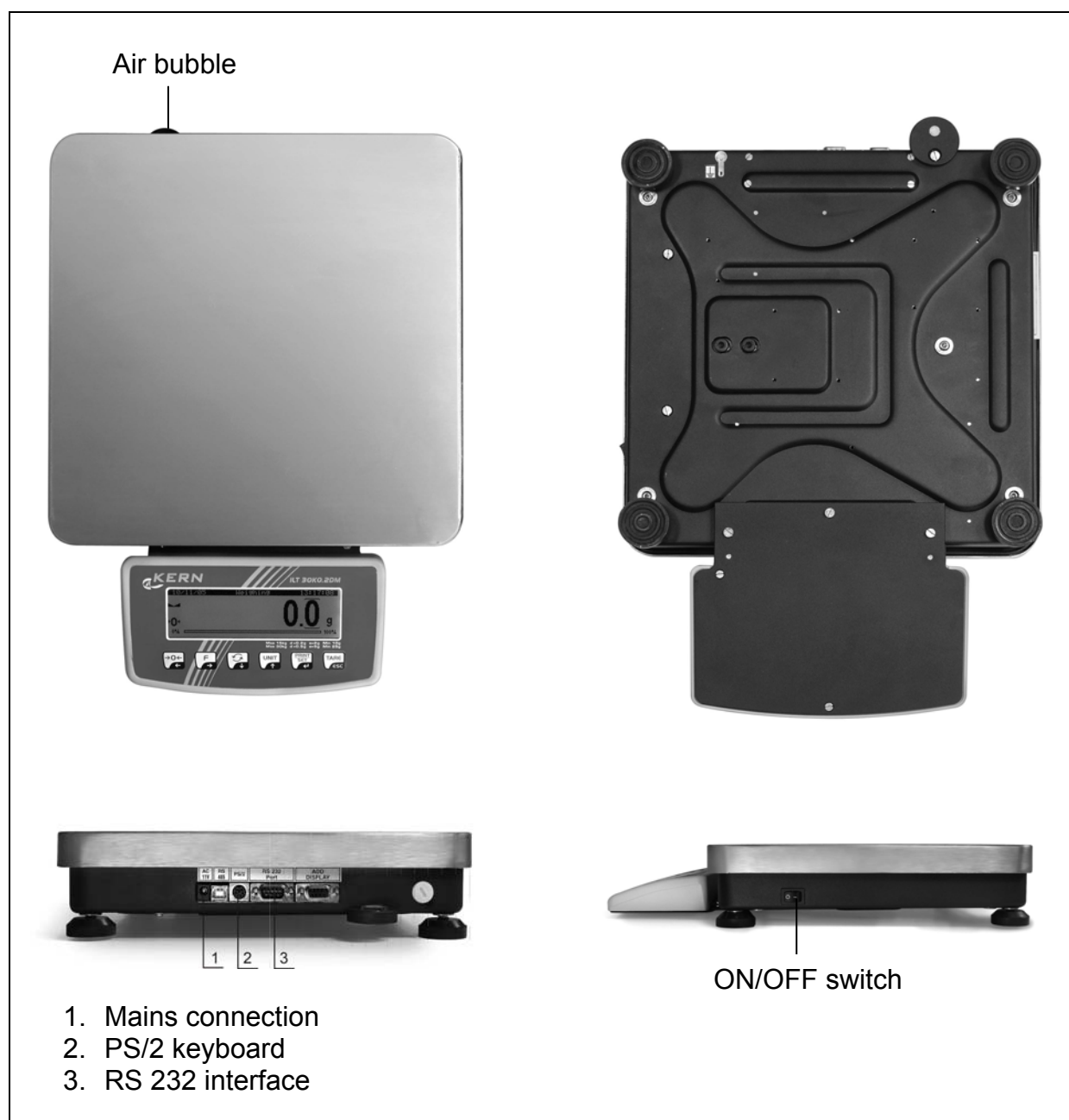
Signature:



**Gottl. KERN & Sohn GmbH
Management**

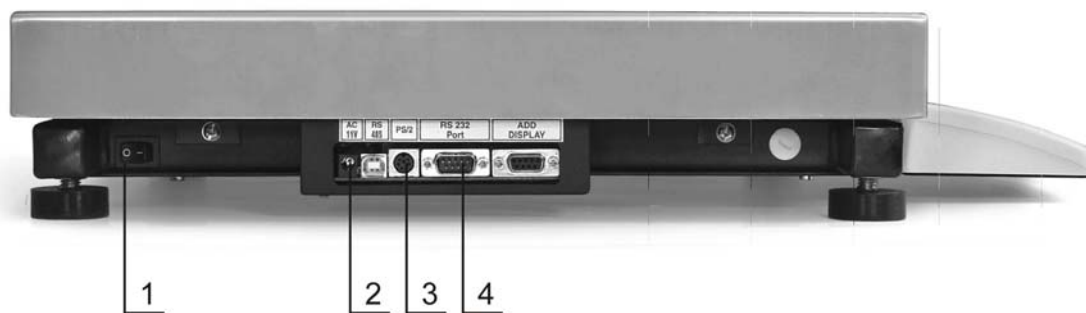
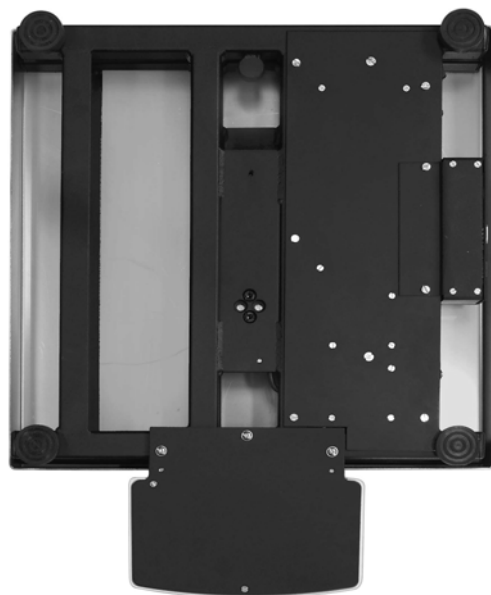
3 Appliance overview

Models: ILT 12K0.1DM, ILT 30K0.2M



Models: ILT 60k0.50M, ILT 120K1DM

Air bubble (underneath weighing plate)



1. ON/OFF switch
2. Mains connection
3. PS/2 keyboard
4. RS 232 interface

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 plate. 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 add-on weighing procedures, if small amounts of goods to be weighed are removed or added. The “stability compensation” installed in the balance may result in displaying an incorrect measuring value! (Example: Slowly draining fluids from a container on the balance.)

Do not leave permanent load on the weighing plate. This may damage the measuring system.

Impacts and overloading exceeding the stated maximum load (max) of the balance, minus a possibly existing tare load, must be strictly avoided. Balance may be damaged by this.

Never operate balance in explosive environment. The serial version is not explosion protected.

The structure of the balance may not be modified. This may lead to incorrect weighing results, safety-related faults and destruction of the balance.

The balance may only be used according to the described conditions. Other areas of use must be released by KERN in writing.

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 or damage 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.

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

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.

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.

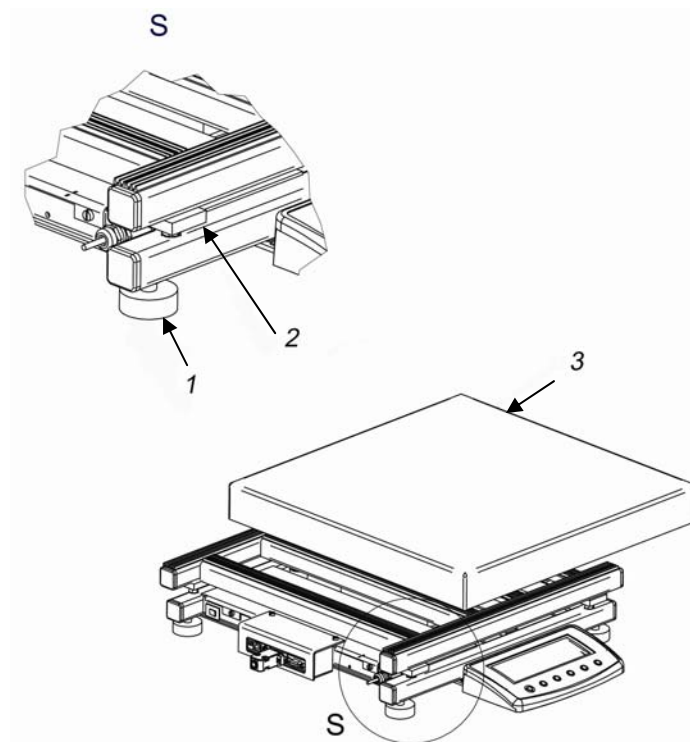
If electro-magnetic fields or static charge occur, or if the power supply is unstable major deviations on the display (incorrect weighing results) are possible. In that case, the location must be changed.

7.2 Unpacking

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

Remove the transport arrestment (models ILT 60k0.50M, ILT 120K1DM):

- Screw in the 4 foot screws
- Remove the 4 plastic inserts (2)



- Place the weighing pan (3) on the balance

7.2.1 Setup

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

7.2.2 Scope of delivery

Serial accessories:

- Balance
- Weighing plate
- Mains power supply
- Operating Manual
- Safety hood above control panel

7.3 Mains connection

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

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

7.4 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.

7.5 Initial Commissioning

A warming up time of 15 minutes after switching on stabilizes the measuring values.

The accuracy of the balance depends on the local acceleration of gravity.

Strictly observe hints in chapter Adjustment.

8 User menu

The user menu has nine main menus (P1 - P9), arranged in the following sub-menus:

P1	Calibration		
	01 External calibration	*****	Function
	02 User calibration	*****	Function
	03 Calibration test	*****	Function
	04 Print report	1	on
P2	GLP		
	01 User		
	02 Project		
	03 Time print	1	on
	04 Date print	1	on
	05 User print	1	on
	06 Project print	1	on
	07 Id printout	1	on
	08 Last Cal. print	1	on
P3	Date/time		
	01 Date format	0	DA/MO/YR
	02 Time format	0	24 hour
	03 Time	*****	Function
	04 Date	*****	Function
	05 Display time	1	on
	06 Display date	1	on
P4	Readout		
	01 Filter	3	normal
	02 Med. filter	1	active
	03 Disp.refresh	1	
	04 Auto zero	1	on
	05 Last digit	1	always
	06 Negative	0	disabled

P5	RS-232		
	01 Baud rate	1	4800
	02 Parity	0	None
	03 Data bits	2	8 bit
	04 Stop bits	1	1 Stop bit
	05 Handshake	0	none
	06 Auto. Print	0	None
	07 Interval	1	* 0.04 s
	08 Min. mass	4	10 d
	09 Print on stab	1	enabled
	10 Pause	1	* 0.1 s
P6	Printouts		
	01 Prontout men.	*****	Function
	02 1. Printout dest.	0	RS+Mem
	03 Printout No.	0	Standard
	04 Printout Mem. No.	0	Standard
	05 1. Printout start	1	
	06 1. Printout stop	1	
	07 2. Printout start	1	
	08 2. Printout stop	1	
			
	13 1. String		
	14 2. String		
			
	92 80. String		
P7	Units		
	01 Gram	1	enabled
	02 Kilogram	0	disabled
	03 Pound	0	disabled
	04 Ounce	0	disabled
	05 Troy ounce	0	disabled
	06 Carat	0	disabled
	07 Dwt	0	disabled
	08 Teal Hk.	0	disabled
	09 Teal S.	0	disabled
	10 T.eal T	0	disabled
	11 Momme	0	disabled
	12 Grain	0	disabled
	13 Newton	0	disabled
	14 Tical	0	disabled
	15 User defined	0	disabled
	16 User factor	0.1	
P8	Operating modes		
	01 Parts Count	1	enabled
	02 Checkweighing	1	enabled
	03 Filling	1	enabled
	04 Percent	1	enabled
	05 Animal	1	enabled
	06 Density	1	enabled
	07 Formulation	1	enabled
	08 Statistics	1	enabled

- P9 Globals**
- 01 ID setting
 - 02 ID autoprnt
 - 03 Beep
 - 04 Language
 - 05 Backlight
 - 06 Contrast
 - 07 Screensaver
 - 08 Balance Id
 - 09 Software rev.
 - 10 Parameter printout
 - 11 Parameter receive.

```

*****
          0 no
          1 on
*****
          1 on
*****
          0 disabled
WL141475
MBT 1b24
*****
*****

```

Main menu:

	1. Menu number (P1 - P9) 2. Menu designation 3. Cursor (►) indicates the current menu item
--	--

Submenu:

	1. Main menu number (P1 – P9) 2. Sub-menu number and designation 3. Parameter value or ***** i.e. this menu item is stored as function 4. Description of function 5. Cursor (►) shows the current menu item (e.g. P1). 6. Cursor (►) shows the current setting (e.g. 06). 7. Status 8. Use the arrow key to modify the parameter value, the active parameter blinks.
--	---

8.1 User principle of the menu control

In the menu the settings of the balance can be modified and functions can be activated.

This way, the balance can be adjusted to individual weighing requirements. Proceed as follows:

⇒ Switch on the balance using the -key

⇒ After actuating the  key the display shows the main menus that can be set

2.02.05	Setup	13:47:56
P1	Calibration	
P2	GLP	
P3	Date/Time	
P4	Readout	
P5	RS-232	
P6	Printouts	
P7	Units	
P8	Modes	
P9	Globals	

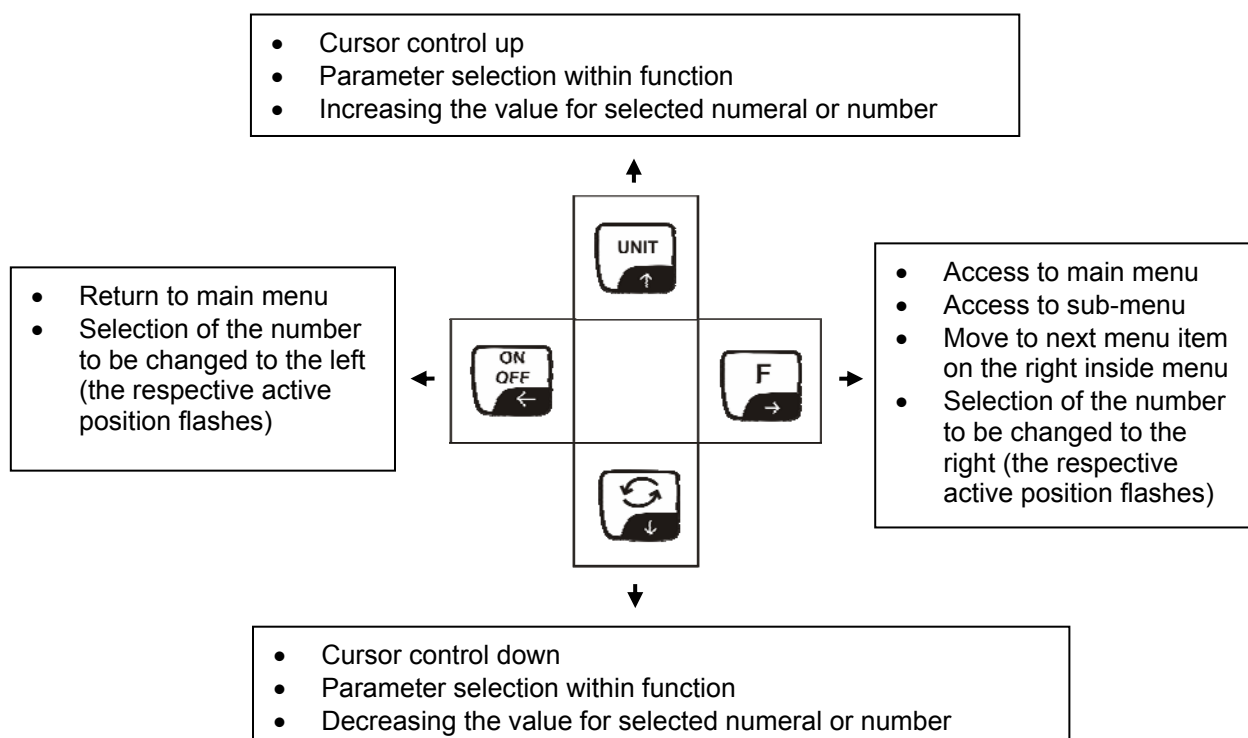
⇒ Use the cursor () to select your setting

Use the  key to move the cursor () down, the  key to move it up

⇒ The  key confirms your selected setting, the display shows the sub-menu or the active menu item blinks:

31.01.05	Setup	13:47:56
P1	01	Int. calibr. *****function
	02	Ext. calibr. *****function
	03	User calibr. *****function
	04	Calibr. test *****function
	05	Weight. corr. 0.0
	06	Auto calibr. 0 off
	07	Auto cal. time 1 1 hour
	08	Print report 1 on

⇒ Use the arrow keys to move within and enter into the menu:



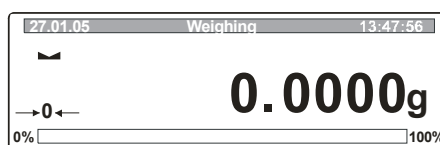
- ⇒ Actuating the -key will confirm your setting; to interrupt use the -key
- ⇒ Press -key to return to menu
- ⇒ Actuate -key again, a message will inquire whether you want to save the changes you made.



- ⇒ Actuating the  key will save the selected setting.
- ⇒ If you do not want to save your selected setting, press the  key



- ⇒ The balance returns automatically into weighing mode.



8.2 Operation of the balance with PS/2-keyboard

Using a PS/2 keyboard will help you to enter numbers and texts faster and easier.

Key allocation:

						Balance keyboard
						PS- keyboard























8.3 Menu selection

8.3.1 P1 Calibration (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.

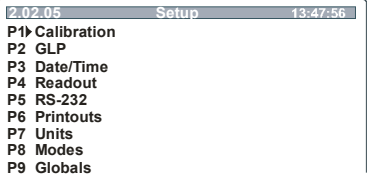
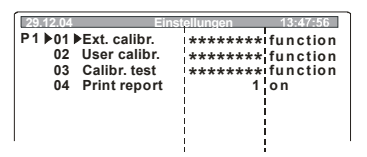
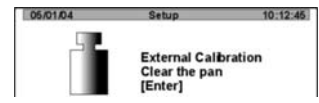
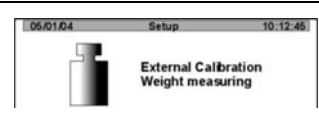
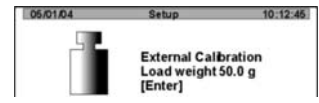
Procedure when adjusting:

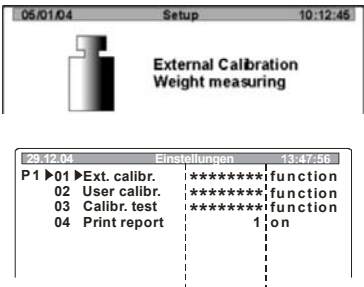
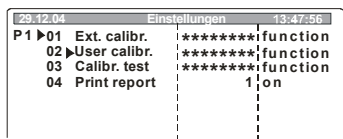
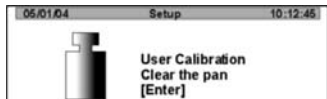
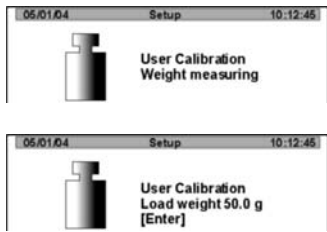
Observe stable environmental conditions. A warming up time of ca. 1 hour is required for stabilization.

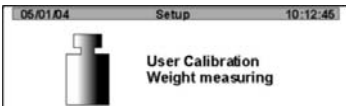
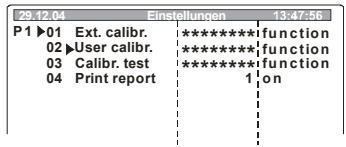
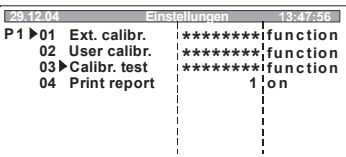
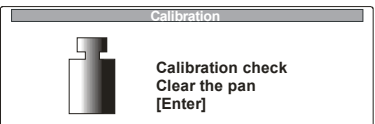
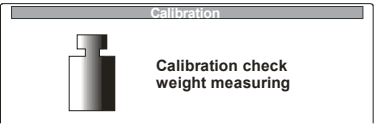
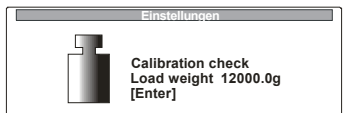
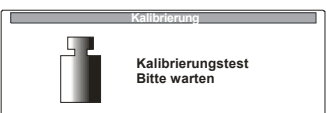
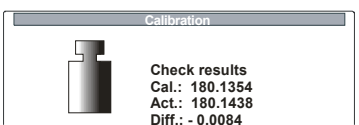
Note!

During the adjustment process no objects should be on the weighing plate.

In calibrated balances the adjustment function is switch locked. To carry out an adjustment, the switch must be unlocked, see chpt. 8.3.1.2

Operation	Display
⇒ Call up menu item "P1 Calibration" (see chapt. 8.1) ⇒ Press  -button	
01 Ext. Cal - adjustment with external weight (locked for verifiable devices)	
⇒ Use the cursor () to select "01 Ext. cal."	
⇒ Press  -button Ensure that there are no objects on the weighing plate.	
⇒ Press  -key, on the display appears the weight value of the adjusting weight.	 

⇒ Now move the adjusting weight to the centre of the weighing plate, press -key. If the adjustment was successful, this will be followed by automatic reset to the menu. The -key may be used to cancel the adjustment. Errors during adjustment or the use of an incorrect adjusting weight will result in an error message. Repeat adjustment.	 The top screen shows '05/01/04 Setup 10:12:45' and 'External Calibration Weight measuring' with a weight icon. The bottom screen shows the 'Einstellungen' menu with options: P1 ▶ 01 ▶ Ext. calibr. (function), 02 ▶ User calibr. (function), 03 Calibr. test (function), and 04 Print report (on).
⇒ Press -key until you enter the menu/weighing mode (see chapt. 8.1)	
02 User cal. (locked in calibrated appliances)	
⇒ Use the cursor (▶) to select „02 User cal.“	 The screen shows the 'Einstellungen' menu with the same options as the previous screen.
⇒ Press -key, on the display appears the weight value of the adjusting weight. The first digit of the displayed value is flashing. Now you can change the weight value by pressing the arrow keys. After adjusting, confirm your new adjusting weight by pressing the -key.	 The screen shows 'Einstellungen' and 'Benutzerkalibrierung Masse eingeben [g]: 12000.00' with a weight icon and an arrow pointing to the value.
⇒ Ensure that there are no objects on the weighing plate. Press -button	 The screen shows '05/01/04 Setup 10:12:45' and 'User Calibration Clear the pan [Enter]' with a weight icon.
⇒ Press -key, the display shows the weight value of the adjusting value set by you	 Two screens are shown. The top one shows '05/01/04 Setup 10:12:45' and 'User Calibration Weight measuring' with a weight icon. The bottom one shows '05/01/04 Setup 10:12:45' and 'User Calibration Load weight 50.0 g [Enter]' with a weight icon.

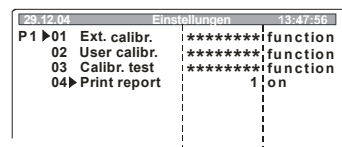
⇒ Now move the adjusting weight to the centre of the weighing plate, press -key. If the adjustment was successful, this will be followed by automatic reset to the menu. The -key may be used to cancel the adjustment. Errors during adjustment or the use of an incorrect adjusting weight will result in an error message. Repeat adjustment.	 
We recommend: Carry out all adjustments as close as possible to the maximum load of the balance. Info about test weights can be found on the Internet at: http://www.kern-sohn.com	
03 Cal. test Here, deviation from the last adjustment is determined. This is only a check, i.e. no values are changed.	
⇒ Use the cursor () to select "03 Cal. test"	
⇒ Press -button	
⇒ Press -key, on the display appears the weight value of the adjusting weight.	 
⇒ Now set the adjusting weight in the centre of the weighing plate. Press -key; calibration test will be executed automatically	
⇒ The result is displayed	

04 Print report – printout of adjusting data

⇒ Use the cursor (►) to select **"04 Print report"**

⇒ Press  -key, the current menu items starts flashing
Highlight your settings by using the arrow keys

- 0** **Print report** deactivated
1 **Print report** activated



29.12.04	Einstellungen	13:47:56
P1 ► 01	Ext. calibr.	*****function
02	User calibr.	*****function
03	Calibr. test	*****function
04 ►	Print report	1on

⇒ Confirm with the  -key

⇒ With **"Print report"** activated, you will receive a printout of your adjustment data after each adjustment (example):

Report of external calibration

Calibration : external

Diff.. : 0.0038 g

Signature.....

8.3.1.1 Verification

General introduction:

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

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

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

Verification instructions

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

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

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

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

- **The weighing result of the balance is outside the error limit.**
Therefore, in regular intervals load balance with known test weight (ca. 1/3 of the max. load) and compare with displayed value.
- **The reverification deadline has been exceeded.**

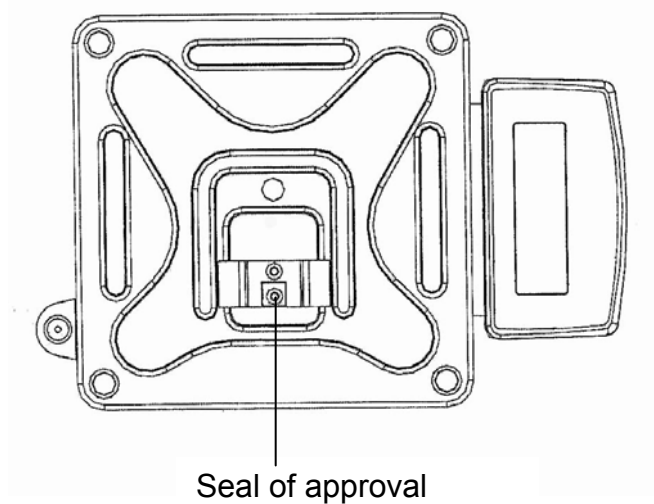
8.3.1.2 Seals and unlocking switch

After verification the balance is sealed at the indicated positions.

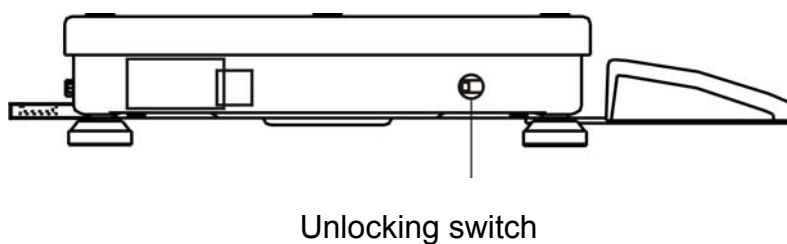
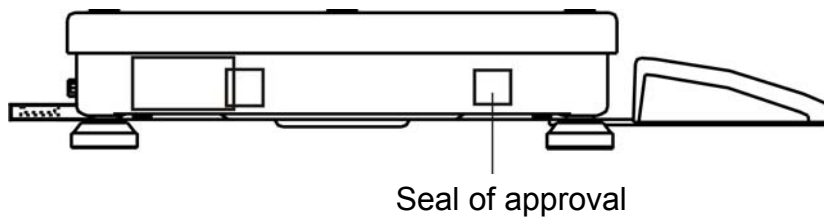
Verification of the balance is invalid without the "seal".

1. Top of the balance

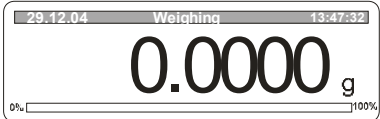
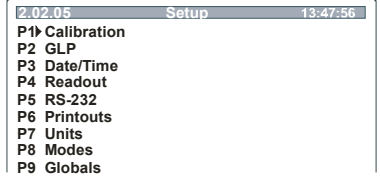
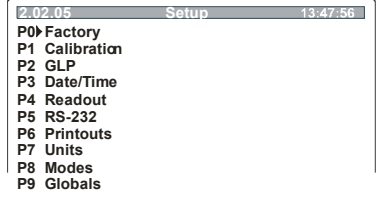
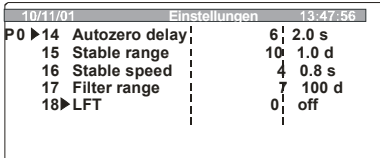
- Remove weighing plate



2. Lateral view



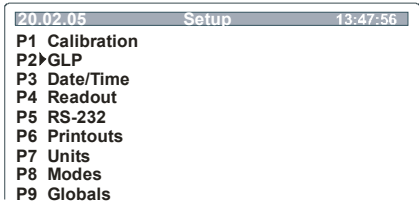
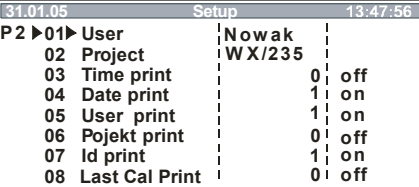
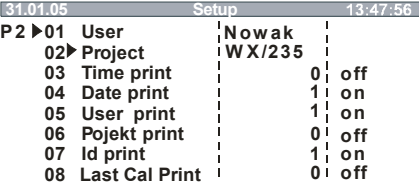
Unlock the balance for the adjusting process:

Operation	Display
⇒ Remove the seal of approval (Attention: Verification no longer valid!) ⇒ Switch off the balance ⇒ Switch on the balance whilst keeping the adjusting switch pressed down ⇒ As soon as the pictograph for “balance” appears, release the adjusting switch. ⇒ Wait until the balance is in weighing mode ⇒ Press -button	  
Access to service menu P0 factory settings: ⇒ Press -button	
⇒ Press -key, selection of parameters appears	
⇒ Trigger parameter 18 LFT by pressing the -key and select “0” setting. Your balance is now unlocked for the adjusting process and all weighing units are activated.	
⇒ Confirm and store by pressing the -key (see chpt. 8.1)	
⇒ To reset the balance to the calibrated setting, select setting “1” for parameter 18 LFT. Now only the metric weighing units (g, kg) are activated.	

8.3.2 P2 GLP (Good laboratory practice)

Quality assurance systems require printouts of weighing results as well as of correct adjustment of the balance stating date and time and balance identification. The easiest way is to have a printer connected.

Definition of a standard log:

Operation	Display
⇒ Call up menu item "P2 GLP" (see chapt. 8.1) ⇒ Press  -button	 <pre> 20.02.05 Setup 13:47:56 P1 Calibration P2>GLP P3 Date/Time P4 Readout P5 RS-232 P6 Printouts P7 Units P8 Modes P9 Globals </pre>
01 User	
⇒ Use the cursor (►) to select "01 User" ⇒ Press  -key, the current menu item is flashing Use the arrow keys, to enter user name or number (maximal 8 characters) with the arrow keys.	 <pre> 31.01.05 Setup 13:47:56 P2>01>User Nowak 02 Project WX/235 03 Time print 0 off 04 Date print 1 on 05 User print 1 on 06 Pojekt print 0 off 07 Id print 1 on 08 Last Cal Print 0 off </pre>
⇒ Confirm with  -key	
02 Project	
⇒ Use the cursor (►) to select "02 Project" ⇒ Press  -key, the current menu item is flashing Use the arrow keys, to enter project name or number (maximal 8 characters)	 <pre> 31.01.05 Setup 13:47:56 P2>01 User Nowak 02>Project WX/235 03 Time print 0 off 04 Date print 1 on 05 User print 1 on 06 Pojekt print 0 off 07 Id print 1 on 08 Last Cal Print 0 off </pre>
⇒ Confirm with  -key	
All other settings (03 - 08) are executed in the same way.	

All settings that are supposed to be printed must be activated with "1 / yes" .

Example 1:

Setting

Printout

P2	03	Printout time	1	yes
P2	04	Printout date	1	yes
P2	05	User printout	1	yes
P2	06	Project printout	1	yes
P2	07	ID-printout	1	yes
P2	08	Cal. printout	1	yes

Date	: 18.01.05
Time	: 10:41:05
User	: Mustermann
Project	: AB/007
Balance no:	: WL 041078

18.01.05	07:48
----------	-------

Automatic calibration

Deviation : 0.003[5] g

10.429[0] g

Example 2:

Setting

Printout

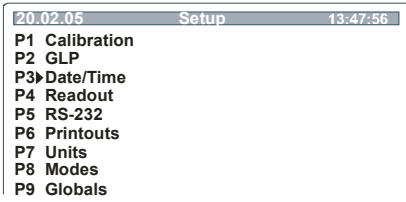
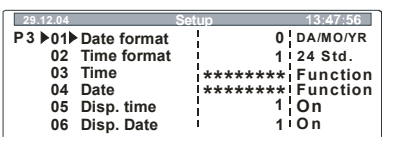
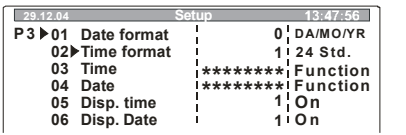
P2	03	Printout time	0	no
P2	04	Printout date	1	yes
P2	05	User printout	1	yes
P2	06	Project printout	0	no
P2	07	ID-printout	1	yes
P2	08	Cal. printout	0	no

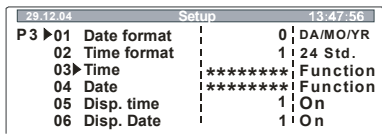
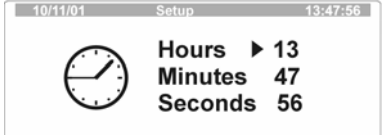
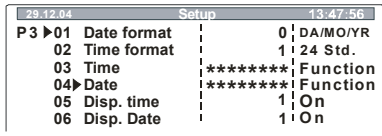
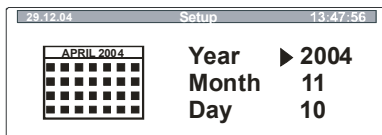
Date:	22/10/2004
User:	Mustermann
Balance no:	10

13.0521 g

8.3.3 P3 Date/time

Under this menu item you can set output and formatting of date and time in the status bar.

Operation	Display
⇒ Call up menu item "P3 Date/time" (see chap. 8.1) ⇒ Press -button	
01 Date format	
⇒ Use the cursor (►) to select "01 Date format" ⇒ Press the -key; the current menu item blinks ⇒ Use the -key to select between the following settings: 1 Month/Day/Year 0 Day/Month/Year	
⇒ Confirm with -key	
02 Time format	
⇒ Use the cursor (►) to select "02 Time format" ⇒ Press the -key; the current menu item blinks ⇒ Use the -key to select between the following settings: 0 24 hours 1 12 hours (PM/AM)	
⇒ Confirm with -key	

03 Time	
⇒ Use the cursor (►) to select "03 Time"	 29.12.04 Setup 13:47:56 P3 ►01 Date format 0 DA/MO/YR 02 Time format 1 24 Std. 03►Time ***** Function 04 Date ***** Function 05 Disp. time 1 On 06 Disp. Date 1 On
⇒ Press  -button ⇒ Use the  - or  -key to trigger your selection	 10/11/01 Setup 13:47:56  Hours ► 13 Minutes 47 Seconds 56
⇒ Use the  -key to confirm your selection (e.g. hours), the current menu item blinks	
⇒ Use the  -key, to increase and the  -key to decrease the number value ⇒ Use the  - and  -keys to select the place to be changed (the respective active place blinks)	
⇒ Use the  -key to confirm your selection (e.g. hours). ⇒ To change minutes and seconds proceed in the same way.	
⇒ Confirm with  -key	
04 Date	
⇒ Use the cursor (►) to select "04 Date"	 29.12.04 Setup 13:47:56 P3 ►01 Date format 0 DA/MO/YR 02 Time format 1 24 Std. 03 Time ***** Function 04►Date ***** Function 05 Disp. time 1 On 06 Disp. Date 1 On
⇒ Press  -button	 29.12.04 Setup 13:47:56  Year ► 2004 Month 11 Day 10
⇒ All other settings are made in the same way as time (03 Time).	

05/06 Displ. Time/Date

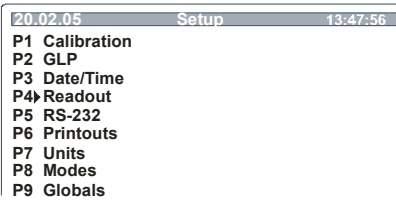
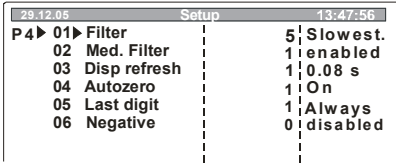
- ⇒ Use the cursor (►) to select e.g. **"05 Displ.time/date"**
- ⇒ Press the  -key; the current menu item blinks
- ⇒ Use the  -key to select between the following settings:

0 Time/date is displayed in the status bar
1 Time/date is not displayed in status bar

⇒ Confirm with -key

29.12.04		Setup		13:47:56	
P3 ▶	01 Date format	0	1	DA/MO/YR	
	02 Time format	1	1	24 Std.	
	03 Time	*****	1	Function	
	04 Date	*****	1	Function	
	05 Disp. time	1	1	On	
	06 Disp. Date	1	1	On	

8.3.4 P4 Readout

Operation	Display
⇒ Call up menu item "P4 Readout" (see chapt. 8.1) ⇒ Press  -button	
01 Filter	
⇒ Use the cursor () to select "01 Filter" ⇒ Press the  -key; the current menu item blinks ⇒ Use the  - and  -key to select between the following settings: 1 Very quiet and stable environment: Balance works very fast but is more sensitive to external influences ↓ ↓ 5 Busy environment: Balance works more slowly but is less sensitive to outside influences	
⇒ Confirm with  -key	

02 Med. Filter

This is a filter that is adjustable for e.g. 50 sample weighing procedures/ collects, organizes, averages during a certain interval e.g. in 1 s. Especially useful in case of impacts or shocks.

- ⇒ Use the cursor (►) to select **"02 Med. filter"**
- ⇒ Press the -key; the current menu item blinks
- ⇒ Use the  - and -key to select one of the following settings:
 - 0 blocked**
 - 1 active**

29.12.05 Setup 13:47:56	
P4► 01 Filter	5 Slowest.
02 Med. Filter	1 enabled
03 Disp refresh	1 0.08 s
04 Autozero	1 On
05 Last digit	1 Always
06 Negative	0 disabled

- ⇒ Confirm with -key

03 Disp.refresh

- ⇒ Use the cursor (►) to select **"03 Disp.refresh"**
- ⇒ Press the -key; the current menu item blinks
- ⇒ Use the  - and -key to set the time it takes before the display is refreshed after the weight value has changed.

1	0.08/ s
↓	↓
5	1.0 s

29.12.05 Setup 13:47:56	
P4► 01 Filter	5 Slowest.
02 Med. Filter	1 enabled
03 Disp refresh	1 0.08 s
04 Autozero	1 On
05 Last digit	1 Always
06 Negative	0 disabled

- ⇒ Confirm with -key

04 Autozero

- ⇒ Use the cursor (►) to select **"04 Autozero"**
- ⇒ Press the -key; the current menu item blinks
- ⇒ Use the  - and -key to select one of the following settings:
 - 0** Deviations from the Zero display are **not** automatically tared.
 - 1** Deviations from the Zero display are automatically tared.

29.12.05 Setup 13:47:56	
P4► 01 Filter	5 Slowest.
02 Med. Filter	1 enabled
03 Disp refresh	1 0.08 s
04 Autozero	1 On
05 Last digit	1 Always
06 Negative	0 disabled

- ⇒ Confirm with -key

05 Last digit

- ⇒ Use the cursor (►) to select **"05 Last digit"**
- ⇒ Press the -key; the current menu item blinks
- ⇒ Use the  - and -key to select one of the following settings:
 - 0** Last fractional digits are omitted
 - 1** All fractional digits

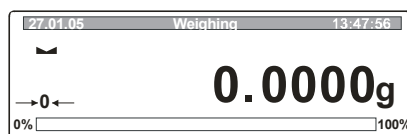
29.12.05 Setup 13:47:56	
P4 ► 01 Filter	5 Slowest.
02 Med. Filter	1 enabled
03 Disp refresh	1 0.08 s
04 Autozero	1 On
05 ► Last digit	1 Always
06 Negative	0 disabled

- ⇒ Confirm with -key

06 Negative

- ⇒ Use the cursor (►) to select **"06 Negative"**
- ⇒ Press the -key; the current menu item blinks
- ⇒ Use the  - and -key to reverse the colour setting of the display
 - 0** blocked
 - 1** active

29.12.05 Setup 13:47:56	
P4 ► 01 Filter	5 Slowest.
02 Med. Filter	1 enabled
03 Disp refresh	1 0.08 s
04 Autozero	1 On
05 Last digit	1 Always
06 ► Negative	0 disabled



- ⇒ Confirm with -key

8.3.5 P5 RS-232

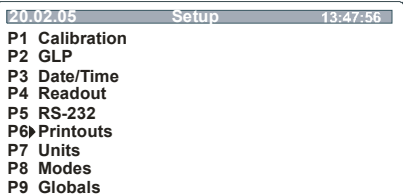
In this menu item you can save your settings for the interface.

Operation		Display	
⇒ Call up menu item "P5 RS-232" (see chapt. 8.1) ⇒ Press  -button		20.02.05Setup13:47:56 P1 Calibration P2 GLP P3 Date/Time P4 Readout P5▶RS-232 P6 Printouts P7 Units P8 Modes P9 Globals	
01 -10 Parameter selection			
⇒ Use the cursor (▶) to select your parameters (01 - 10)		29.12.04Setup13:47:56 P5▶01▶Baud rate29600 02 Parity0none 03 Data bits28 bits 04 Stop bits11 bit 05 Handshake0none 06 Auto print0none 07 Inetrvl25* 0.1 s 08 Min.mass11 d 09 Print on stab1 enabled	
01 Baud rate	0	2400	
	1	4800	
	2	9600	
	3	19200	
02 Parity	0	none	
	1	even	
	2	uneven	
03 Data bits	1	7 Bit	
	2	8 Bit	
04 Stop bits	1	1 Stop bit	
	2	2 Stop bit	
05 Handshake	0	None	
	1	RTS/CTS	
	2	XON/XOFF	
06 Autom. Printout	0	None	No data output
	1	steady	Continuous serial data output
	2	interval (discrete)	Serial data output after a certain interval, defined in parameter „07 Interval“
	3	at resting	Unique autom. Data output for steady weighing value. New output only after removing the weight and new loading

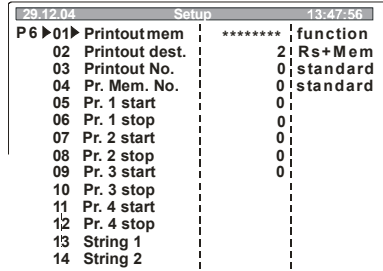
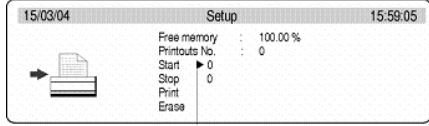
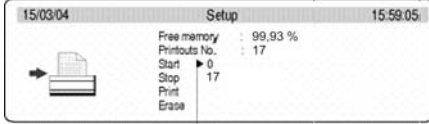
07 Interval	1 – 9999 (Enter via arrow keys)	Definition of an interval after which data output is executed. Pulse = parameter value x 0.1 sec	
08 Min. measuring value	1	1 d	Definition of a minimum measuring value from which serial data output is executed
	2	2 d	
	3	5 d	
	↓ 13	↓ 10000 d	
09 Printout at stab.	0	blocked	Data output for steady weighing value.
	1	active	
10 Pause	1(factor)	* 0.1s	Period of time between variables sent by the balance
⇒ Press  -key, the current menu items starts flashing Highlight your settings by using the arrow keys ⇒ Confirm with  -key			

8.3.6 P6 Printout

In this menu item you can select between 5 different types of data output:

Operation	Display
⇒ Call up menu item "P6 Printout" (see chapt. 8.1) ⇒ Press  -button	

01 Printout memory – This is where you can store and file your standard printouts or, if required, new printouts can be made

⇒ Press  -key The memory capacity is displayed (max. 500 000 characters). ⇒ After data output has taken place (e. g. of 17 printouts) your data will be displayed in the memory. Use the cursor (►), to select one of the settings below: Run: Input as from which printout you require printouts/deletions Stop : End, up to which printout you require printouts/deletions Print : Printing of data selected by you Erase : Deletion of data selected by you ⇒ Press the  -key; the current menu item blinks ⇒ Use the  - and  -key, to select your settings ⇒ Use the  -key, to confirm your selection	 88 String 79 89 String 80  
--	---

02 Printout dest.

- ⇒ Use the cursor (►), to select “02 Printout dest.”
- ⇒ Press  -key, the current menu items starts flashing
Highlight your settings by using the arrow keys
- ⇒ **0** Rs for RS 232 interface
1 Mem for the memory /archive
2 Rs +Mem for RS 232 interface and memory

29.12.04 Setup 13:47:56	
P6 ▶01 Printoutmem	***** function
02 ▶Printout dest.	2 Rs+Mem
03 Printout No.	0 standard
04 Pr. Mem. No.	0 standard
05 Pr. 1 start	0
06 Pr. 1 stop	0
07 Pr. 2 start	0
08 Pr. 2 stop	0
09 Pr. 3 start	0
10 Pr. 3 stop	
11 Pr. 4 start	
12 Pr. 4 stop	
13 String 1	
14 String 2	
88 String 79	
89 String 80	

03 Printout no.

- ⇒ Use the cursor (►) to select “03 Printout no.”
- ⇒ Press the  -key; the current menu item blinks
- ⇒ Use the  - and  -key to select one of the settings below:

0 standard
1 1. Printout
 ↓ ↓
4 4. Printout

29.12.04 Setup 13:47:56	
P6 ▶01 Printoutmem	***** function
02 Printout dest.	2 Rs+Mem
03 ▶Printout No.	0 standard
04 Pr. Mem. No.	0 standard
05 Pr. 1 start	0
06 Pr. 1 stop	0
07 Pr. 2 start	0
08 Pr. 2 stop	0
09 Pr. 3 start	0
10 Pr. 3 stop	
11 Pr. 4 start	
12 Pr. 4 stop	
13 String 1	
14 String 2	
88 String 79	
89 String 80	

- ⇒ Use the  -key to confirm your selection

8.3.6.1 Standard data output (0 standard)

Data output is carried out by actuating the  -key.
Definition of the log header is executed in menu item “P2 GLP”.
Examples.

Date:	22/10/2004
Time:	13.04.23
User:	Mustermann
Project:	XW/456
	0.008 g

Date:	22/10/2004
Time:	13.16.49
User:	Mustermann
Project:	XW/456
Balance	10
?	62.685 g *

*: ? = instable measuring value

8.3.6.2 User-defined data output (1. Printout ↔ 4. Printout)

Here you can define 4 different types of data output.

⇒ The content of the data output is defined as follows.

First line **1. Printout start - 1**, i.e. text begins at line 1 (1. Text)

Last line **1. Printout stop - 20**, i.e. text ends at line 20 (20. Text)

⇒ Text input per line is carried out via the arrow keys (see chapter 8.1) in the respective strings.

1. string Start of text input
20. string End of text input

During text input lines may overlap, e.g.:

1. Printout start - 1
1. Printout stop - 40
2. Printout start - 20
2. Printout stop - 40

Text input:

- Max. 640 characters
- 80 lines
- 8 characters per line

⇒ After each line confirm your text input using the -key.

⇒ After completely entering the text use the -key to confirm (see chapt. 8.1).

Apart from flow text (characters, numbers and numerals) the following variables are stored in the menu:

General variables	
%%	Printout of 1 character “%” (i.e. in order to print out 1 character %, two %% must be entered)
%N	Net weight
%d	Current date
%t	Current time
%i	Balance ID-no.
%R	Program no.
%P	Project no.
%U	User no.
%F	Current function (operating mode)
%C	Date and time of last adjustment
%K	Type of last adjustment
%I	Deviation from last adjustment
%1-5	Code 1-5

Print related variables	
ll	Printout of 1 character “/” (i.e. in order to print out 1 character /, two // must be entered)
lc	CRLF (carriage return line feed) line beginning next line
lr	CR (carriage return) line beginning
ln	LF (line feed) next line
lt	Tabulator
ls	Next "Text"
lo	End of data input

Variables in the various operating modes		
Variable	Description	Operating mode
%W	Reference quantity	Parts counting
%H	Lower limit	Weighing with tolerance range
%L	Upper limit	
%Z	Nominal value	Filling
%B	Reference mass	Percent weighing
%A	Sensitivity	Dynamic weighing (animal weighing)
%b	Mean Value	
%I	Liquid	Density determination
%p	Method	
%c	Temperature	
%a	Density liquid	
%v	Sinker	

Variable for statistics	
%n	Number weighing processes
%x	Mean Value
%S	Sum of all measuring values
%m	Min value
%M	Max value
%D	Difference min and max value
%s	Standard Deviation
%r	Variance

Examples for text input:

Example 1: *Max mass can not exceed 11.250 g!*

Parameter No.	Text							
	1	2	3	4	5	6	7	8
20 string 10	M	a	x		m	a	s	s
21 string 11		c	a	n		n	o	t
22 string 12		e	x	c	e	e	d	
23 string 13	1	1	.	2	5	0		g
24 string 14		!						
25 string 15								

Example 2: *Kern & Sohn GmbH*

Date:

Time:

Weight:

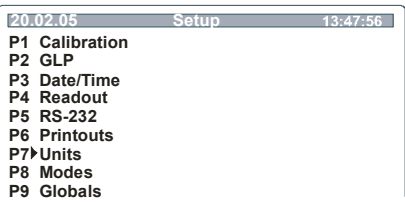
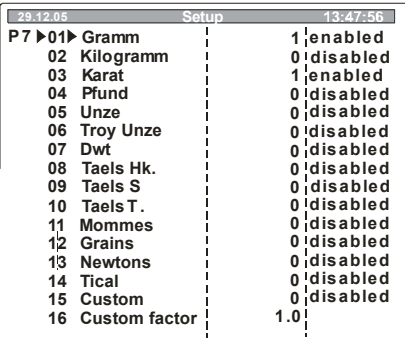
******Signature:******

**** Weighing with tolerance range ****

Parameter No.	Text							
	1	2	3	4	5	6	7	8
26 string 16	K	e	r	n		&		S
27 string 17	o	h	n		G	m	b	H
28 string 18	l	c	D	a	t	u	m	:
29 string 19	%	d	l	c	Z	e	i	t
30 string 20	:	%	t	l	r	l	n	G
31 string 21	e	w	i	c	h	t	:	%
32 string 22	N	l	c	l	c	*	*	*
33 string 23	*	*	U	n	t	e	r	s
34 string 24	c	h	r	i	f	t	:	.
35 string 25	.	.	.	.	.		.	.
36 string 26	.	.	l	c	*	*	%	F
37 string 27	*	*	*	*				

8.3.7 P7 Units

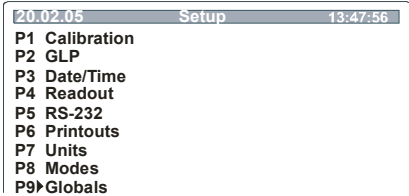
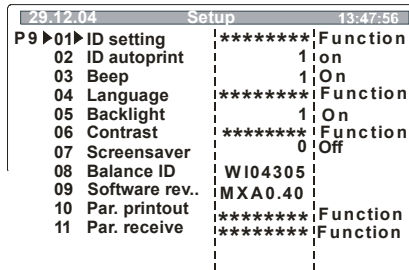
In this menu item you can activate various different weighing units (see chapter 1 "Technical data"). The switchover to the activated units is achieved by pressing the  - key several times.

Operation	Display
⇒ Call up menu item "P7 Weighing units" (see chapt. 8.1) ⇒ Press  -button	
01 -16 Parameter selection	
⇒ Use the cursor (►) to select your setting (01 -16) ⇒ Press  -key, the current menu items starts flashing Highlight your settings by using the arrow keys 0 Weighing unit deactivated 1 Weighing unit activated	
⇒ Use the  -key to confirm your selection ⇒ Save (see chapter 8.1)	

8.3.8 P8 Operating modes

See Chapter 9.1

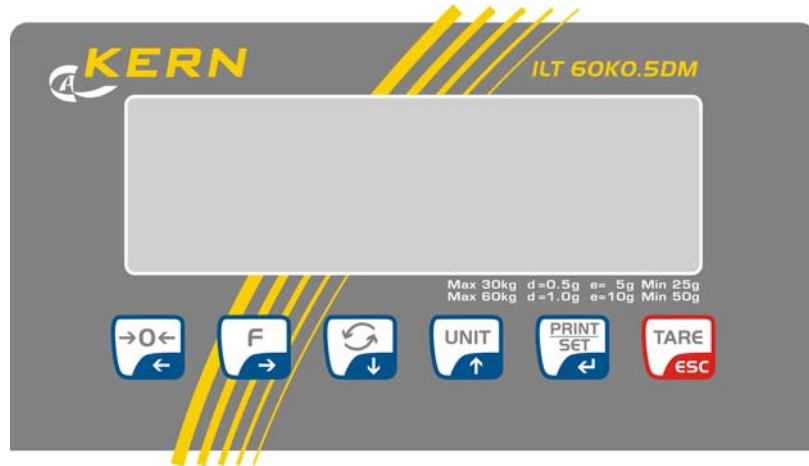
8.3.9 P9 Globals

Operation	Display
⇒ Call up menu item "P9 Global" (see chapt. 8.1) ⇒ Press  -button	
01 -11 Parameter selection	
⇒ Use the  - and  -key to select the parameters "01 - 11"	
01 ID setting Entering a user code 02 ID autoprint User code can also be printed 03 Beep Tone on/off 04 Language User control options available in German, English, French, Spanish, Polish and Czech 05 Backlight Back lighting of the display on/off 06 Contrast Contrast of the display 07 Screensaver Back lighting automatically switches off as soon as a stable measuring value is reached (Condition: Backlight on) 08 Balance Id Balance identification no. 09 Software rev. Software issue 10 Par. Printout Balance parameters are printed out 11 Par. receive. Not documented ⇒ Press the  -key; the current menu item blinks. ⇒ Use the  - and  -key to activate/deactivate parameters ⇒ Confirm your selection with the  -key	

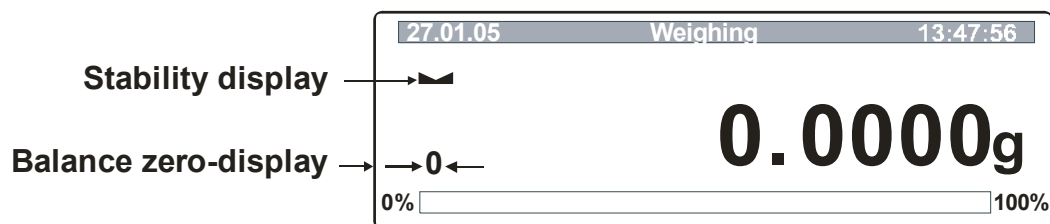
9 Operation

Operating elements

- Display:



- Overview of display:

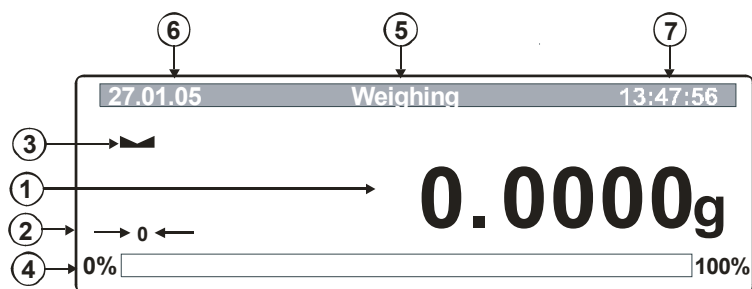


Balance zero display:

If the balance does not show exactly zero although the pan scale is unloaded, press the  -button and the balance will be reset to zero. (Display [→ 0 ←])

Stability display:

If the display shows the stability display [] the balance is in a stable status. If the status is instable the [] display disappears.



1. Weight display
2. Balance zero display
3. Stability display
4. Capacity display
5. Operating mode (status)
6. Current date
7. Current time

• **Keyboard overview:**

Key	Function
	• Turn on/off • Set weight display at zero • Menu item to the left
	• Access to the user menu • Menu item to the right
	• Switch-over key into operating modes • Decreasing the value for selected numeral or number • Parameter selection (cursor control down)
	• Switching-over to other weighing units • Parameter selection (cursor control up) • Increasing the value for selected numeral or number
	• Printout of the weighed value on an external appliance (printer or PC) • Confirm/save settings
	• Taring • Leave menu

9.1 Operating modes (P8)

Under this menu item you can activate or test weigh the following operating modes of the balance

P8 01: Parts count
P8 02: Checkweighing
P8 03: Filling
P8 04: Percent weighing
P8 05: Animal weighing
P8 06: Density
P8 07: Formulation
P8 08: Statistics:

Notice: Some operating modes may be combined (e.g. statistics/counting, statistics/Percent determination). Further details are described in the respective chapters.

Activation/deactivation of the operating modes:

⇒ In main menu call up menu item P8 "Operating mode" (see chapt. 8.1)

⇒ Press the -key; the overview of the operating modes is displayed:

20.02.05		Mode	13:47:56
P8 ▶	01 ▶	Parts Count	1 disabled
	02	Checkweighing	0 enabled
	03	Filling	1 disabled
	04	Percent	1 disabled
	05	Animal	0 enabled
	06	Density	1 disabled
	07	Formulation	0 enabled
	08	Statistics	

⇒ Use the arrow keys (see chapt. 8.1) to activate (1) or deactivate (0) the desired operating modes.

⇒ Confirm your selection with the  key.

⇒ Save (see chapter 8.1)

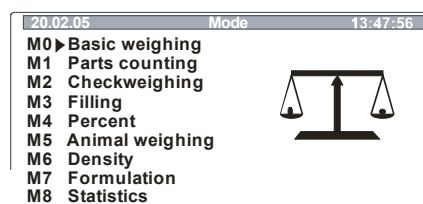
All activated operating modes are now stored in a sub-menu (M0 - M8) and can be directly called up directly with the  key:

20.02.05		Mode	13:47:56
M0 ▶		Basic weighing	
M1		Parts counting	
M2		Checkweighing	
M3		Filling	
M4		Percent	
M5		Animal weighing	
M6		Density	
M7		Formulation	
M8		Statistics	

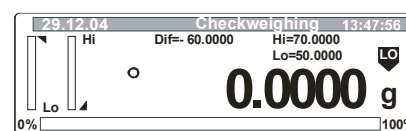


Navigating in operating modes mode:

- ⇒ Press -button
- ⇒ Use the cursor () to select your operating mode

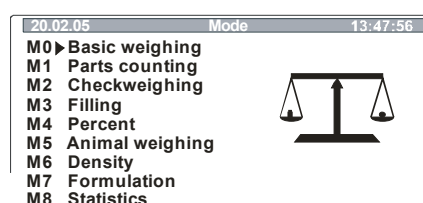


- ⇒ Press the -key; the parameter selection appears
- ⇒ Use the cursor () to select parameter
- ⇒ Press the -key; the current menu item blinks
- ⇒ Use the arrow keys (see chapter 8.1) to save your settings.
All possible settings are described in the chapters of the respective operating mode
- ⇒ Confirm your selection with the  key.
- ⇒ Press -key again; the graphic display of the respective operating mode is displayed.
You are now in operating modes mode.



Return to weighing mode:

- ⇒ Press -button
- ⇒ Cursor () for "M0 Weighing"



- ⇒ Press the  - or -key



9.1.1 Simple weighing

Operation:	Display:
⇒ Switch on the balance using the  -key or ⇒ Use the  key to call the menu item „ M0 Weighing “ (chap.9.1)	
⇒ Your balance is ready to weigh as soon as the “ 0.000 ” display appears.	0,0000
⇒ Put on items to be weighed; after stability time the measuring value is displayed.	19.6879 g
⇒ Pressing the  -key provides option to switch to a different weighing unit, e.g. ct (see chapt. 8.3.7 " P7 Weighing units")	98.4380 ct
⇒ To turn off the balance press the  -key	

9.1.1.1 Taring

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

Operation:	Display:
⇒ Switch on the balance using the  -key	
⇒ Your balance is ready to weigh as soon as the “ 0.0000 ” display appears.	0.0000 g
⇒ Put on items to be weighed, weighed value is displayed.	19.6879 g
⇒ Press the  -key to start the tare procedure. The weight of the container is now saved internally.	0.0000 g
⇒ Place the goods to be weighed into the tare container. Read the weight of the goods on the display.	53.2587 g

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 whole weighing range is exhausted.

After removing the taring container the total weight is displayed as negative display.

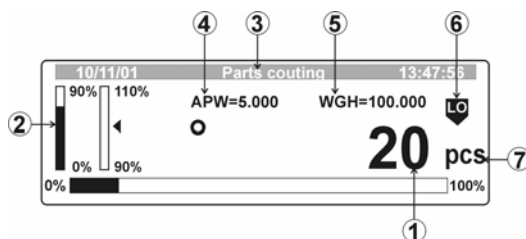
9.1.2 Counting

Before the balance can count parts, it must know the average part weight (i.e. reference). This is either entered manually or determined by weighing. 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.

Display overview for parts counting operation:

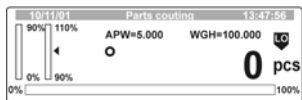
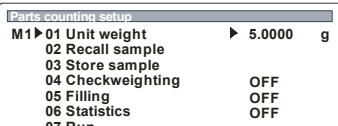
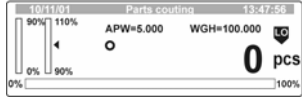
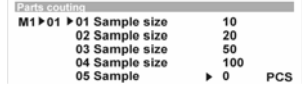
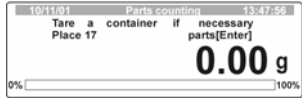
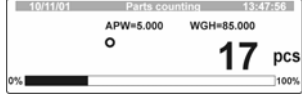
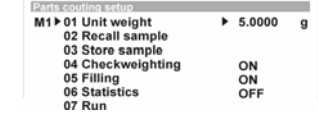
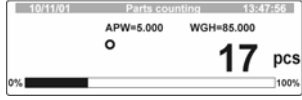


1. Number of all parts on the weighing plate
2. Weighing assistance coarse/fine (only displayed for active dispensing)
3. Operating mode (status bar)
4. Reference weight
5. Weight of all parts on the weighing plate
6. Tolerance marker (only displayed for active tolerance weighing)

	too light
	nominal value
	too heavy

7. Display for parts counting operation

Operation	Display
⇒ Call up menu item "M1 Counting" (see chap. 9.1) ⇒ Press -button	
⇒ Use the cursor () to select your setting (01 - 07)	
01 Reference weight – manual entering of the reference weight	
⇒ Press the -key; the current menu item blinks. Use the arrow keys to enter the reference weight for a unit. Confirm with -key.	

⇒ Press  -key; the display changes into parts counting operation	
⇒ The balance is now in parts counting mode counting all units on the weighing plate	
01 Reference weight – determination of reference weight through weighing	
⇒ Press  -key; display changes to counting mode	 
⇒ Press the  -key; select reference quantity (factory-defined are quantities of 10, 20, 50, 100, or freely selectable) with the arrow keys, use the  -key to confirm	
⇒ Place as many counting parts on the weighing plate as the set reference quantity requires, confirm by pressing the  -key. If you are using a weighing container first tare your balance pressing the  key.	
⇒ Press  -button The symbol () in the display indicates that automatic reference optimization is switched on. Every time more pieces are added the balance carries out optimization automatically. It is not necessary to press another key to start the optimization process. For each reference optimization the average piece weight (reference) is newly calculated. As the additional pieces increase the base for the calculation, the reference also becomes more exact.	
⇒ Operate the  -key. The reference quantity is saved under "01 Unit weight".	
⇒ Press the  -key; the balance is now in parts counting mode counting all units on the weighing plate.	

02 Recall sample – calling up a reference weight from the data base

⇒ Use the cursor (►) to select **"02 Recall sample"**

Parts counting setup			
M1 ▶ 01	Unit weight	5.0000	g
02	Recall sample	►	
03	Store sample		
04	Checkweighting	ON	
05	Filling	ON	
06	Statistics	OFF	
07	Run		

⇒ Press -key; the sub-menu **"02 Recall sample"** is displayed.

Parts counting setup			
M1 ▶ 02 ▶ 01	BBBB	01	1.5000 g
02	BBBB	02	0.4520 g
03	CCCC	03	1.0032 g
...			
49	AAAA	49	0.0015 g
50	AAAA	50	2.0300 g

⇒ Use the arrow keys to select the desired reference weight

Parts counting setup			
M1 ▶ 02 ▶ 01	BBBB	01	1.5000 g
02	BBBB	02	0.4520 g
03	CCCC	03	1.0032 g
...			
49	AAAA	49	0.0015 g
50	AAAA	50	2.0300 g

⇒ Use the -key to confirm; the selected reference weight appears under **"01 Unit weight"**.

Parts counting setup			
M1 ▶ 01	Unit weight	1.0032	g
02	Recall sample	►	
03	Store sample		
04	Checkweighting	ON	
05	Filling	ON	
06	Statistics	OFF	
07	Run		

⇒ Press the -key; the balance is now in parts counting mode counting all units on the weighing plate.

Parts counting			
APW=5.0000		WGH=85.000	
O		17 pcs	
0%		100%	

03 Store sample - saving a reference weight in the database

The reference weight stored in menu item **"01 Reference weight"** can be saved in the data base as follows (max. 200 parameters):

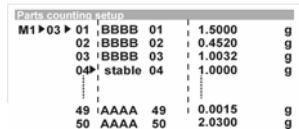
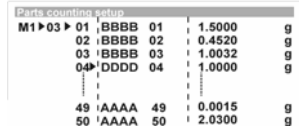
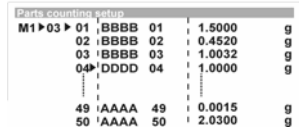
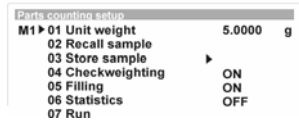
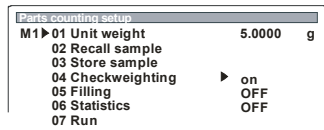
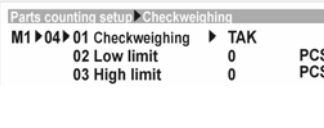
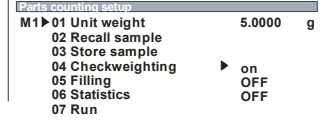
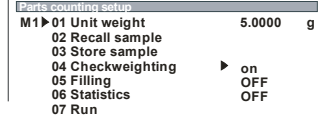
⇒ Use the cursor (►) to select **"03 Store sample"**

Parts counting setup			
M1 ▶ 01	Unit weight	5.0000	g
02	Recall sample		
03	Store sample	►	
04	Checkweighting	ON	
05	Filling	ON	
06	Statistics	OFF	
07	Run		

Parts counting setup			
M1 ▶ 01	Unit weight	5.0000	g
02	Recall sample		
03	Store sample	►	
04	Checkweighting	ON	
05	Filling	ON	
06	Statistics	OFF	
07	Run		

⇒ Press -key; the sub-menu **"03 Store sample"** is displayed.

Parts counting setup			
M1 ▶ 02 ▶ 01	BBBB	01	1.5000 g
02	BBBB	02	0.4520 g
03	CCCC	03	1.0032 g
...			
49	AAAA	49	0.0015 g
50	AAAA	50	2.0300 g

⇒ Use the arrow keys to select the parameter no.	
⇒ Press the  -key; use the arrow keys to enter parameter name (max. 10 characters)	
⇒ Use the  -key, to confirm, the blinking section stops flashing	
⇒ Use the  -key, to return to menu	
04 Checkweighing The combination Counting / Checkweighing enables you to check whether your reference weight is within your set tolerance	
⇒ Use the cursor (►) to select " 04 Checkweighing ".	
⇒ Press  -button	
⇒ Press the  -key; the current menu item blinks	
⇒ Activate operating mode „ Checkweighing “ via the arrow keys (yes).	
⇒ Set tolerance markers	
⇒ Each time confirm by pressing the  -key	
⇒ Use the  -key, to return to menu	

05 Filling

The combination Counting/Filling enables you to define a target quantity

⇒ Use the cursor (►) to select **"05 Filling"**

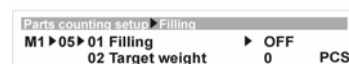
⇒ Press  -button



⇒ Press the  -key; the current menu item blinks

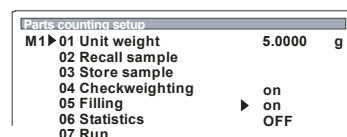
⇒ Activate operating mode **"Filling"** via arrow keys

⇒ Enter value for target weight



⇒ Each time confirm by pressing the  -key

⇒ Use the  -key, to return to menu

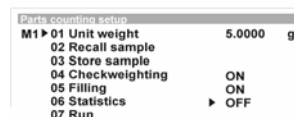


06 Statistics

When combining parts counting /statistics the displayed value is accepted by pressing the  -key.

⇒ Use the cursor (►) to select **"06 Statistics"**

⇒ Press  -button



⇒ Press the  -key; the current menu item blinks



⇒ Use the cursor (►) to select menu item **"03 Clear"**

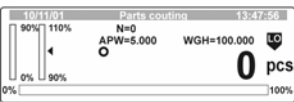
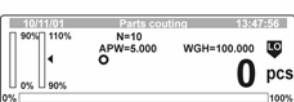
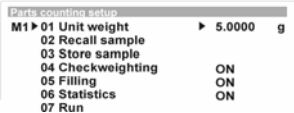
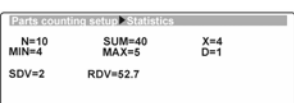


⇒ Press  -button



⇒ Use the  -key, data will be deleted



⇒ Use the cursor (►) to select "01 Statistics"	
⇒ Press  -button	
⇒ Activate operating mode "statistics" via the arrow keys and confirm by pressing the  -key	
⇒ Use the  -key, to return to menu	
⇒ Press  -key; display changes into parts counting mode	
⇒ After each measuring (stable measuring value) press the  -key; the displayed value will be saved and added to the saved number of values (N).	
⇒ How to call statistical results after, for example, 10 measurements (N=10) Use the  -key, to call the menu	
⇒ Use the cursor (►) to select menu item "06 Statistics"	
⇒ Confirm with  -key	
⇒ Use the cursor (►) to select menu item "02 Results"	
⇒ Use the  -key, to confirm; your statistical results will be shown on the display	

⇒ By actuating the -key you can print your statistical results on a connected printer (see example).

N : 10		→	Number weighing processes
SUM : 40	pcs	→	Sum of all weighing procedures
X : 4	pcs	→	Mean Value
MIN : 4	pcs	→	Smallest value
MAX : 5	pcs	→	Largest value
D : 1	pcs	→	MAX – MIN
SDV : 2	pcs	→	Standard Deviation
RDV : 52,7	%	→	Variance

⇒ Press -button

Parts counting setup Statistics
M1 ▶ 06 ▶ 01 Statistics ON
02 Results ▶
03 Clear

⇒ Press -key to return to menu

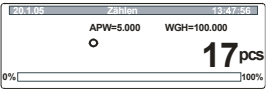
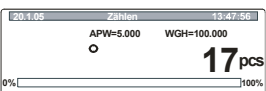
Parts counting setup
M1 ▶ 01 Unit weight 5.0000 g
02 Recall sample
03 Store sample
04 Checkweighting ON
05 Filling ON
06 Statistics ▶ ON
07 Run

07 Run

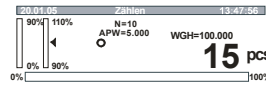
With parameter selection "**M1 07 Run**" (confirm with -key) you will get directly into counting mode.

9.1.2.1 Data output in counting mode

Standard data output:

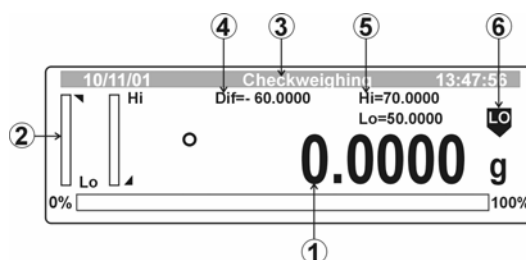
Key	Display	GLP parameter	Data output
		P2 03 Printout Time 0: no P2 04 Printout Date 0: no P2 05 User printout 0: no P2 06 Proj. Printout 0: no P2 07 ID- printout 0: no P2 08 Cal. printout 0: no	17 pcs
		P2 03 Printout Time 1: yes P2 04 Printout Date 1: yes P2 05 User printout 1: yes P2 06 Proj. Printout 1: yes P2 07 ID- printout 1: yes P2 08 Cal. printout 1: yes	Date: 16/01/2004 Time: 13:12:30 User: Maier Project: Checking. Weight: 11111111 Last calibration: ----- 16/01/2004 13:02 External calibration: ----- 0.0001 g ----- 17 pcs

User-defined data output

Key	Display	Variable selection	Data output
		%d; %t; %i; %R; %P; %U; %F; %V; %N; %W; %n; %x; %S; %m; %M; %D; %s; %r; %C; %K; %l;	17/01/2004 08:16:09 11111111 MBA 0.01 Checking. Mustermann. Pieces 15 pcs 15.048 g 5.30000 g 13 15 pcs 195 pcs 15 pcs 17 pcs 2 pcs 0 pcs 0.00 % 16/01/2004 13:02 External calibration 0.01 g

9.1.3 Checkweighing (weighing with tolerance range)

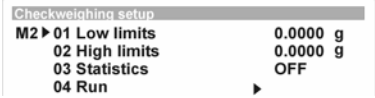
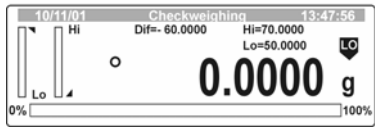
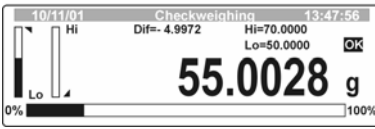
Overview of display:



1. Current weighing value
2. Weighing assistance
3. Operating mode
4. Nominal value
5. Upper limit (Hi), lower limit (Lo)
6. Tolerance marker

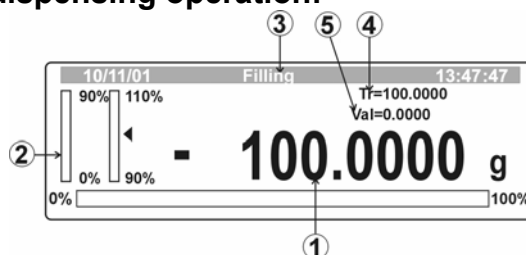
	too light
	nominal value
	too heavy

Operation	Display
⇒ Call up menu item "M2 Checkweighing" (see chap. 9.1) ⇒ Press -button	
01 - 02 Lower/upper limit – entering limit values	
⇒ Use the cursor (►) to select „01 Lower limit or 02 Upper limit“	
⇒ Press the -key; the current menu item blinks. Use the arrow keys, to enter the limits and confirm by pressing the -key Notice: First enter upper limit.	

⇒ Use the cursor (►), to select “04 Run” or press the -key several times. Confirm with -key	
⇒ The balance is now in checkweighing mode	
⇒ Put on goods to be weighed, tolerance control is started	
03 Statistics - combination Checkweighing/Statistics	
⇒ Use the cursor (►) to select “03 Statistics”,	
⇒ All other steps are the same as for combination Parts counting /Statistics (chpt. 9.1.2)	

9.1.4 Filling

Display overview for dispensing operation:



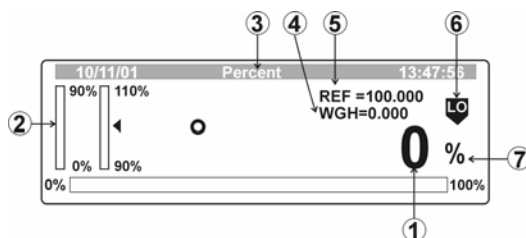
1. Residue filling quantity
2. Weighing assistance coarse /fine
3. Operating mode
4. Target weight
5. Current net weight

Operation	Display
⇒ Call up menu item "M3 Filling" (see chap. 9.1) ⇒ Press -button	
⇒ Use the cursor (►) to select menu item "01 Target weight"	
⇒ Press the -key; the current menu item blinks. Use the arrow keys, to enter the target amount.	
⇒ Confirm with -key	
⇒ Use the cursor (►) to select menu item "03 Run"; confirm with -key. The balance is now in filling mode	
02 Statistics - combination Filling/Statistics	
⇒ Use the cursor (►) to select menu item "02 Statistics"	
⇒ All other steps are the same as for combination Parts counting /Statistics (Chapt. 9.1.2)	

9.1.5 Percent weighing

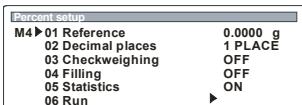
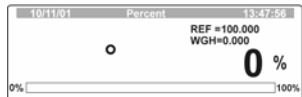
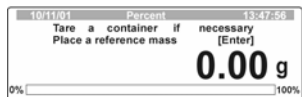
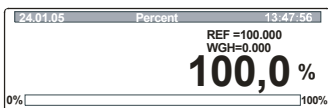
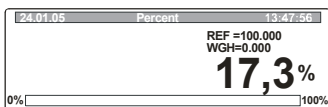
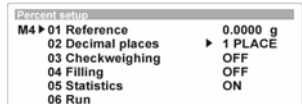
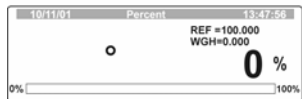
Percent determination allows weight display in percent, in relation to a reference weight.

Display overview for percent determination operation:



1. % - deviation to reference weight
2. Weighing assistance (is only displayed if dispensing is activated)
3. Operating mode
4. Current net weight
5. Reference weight
6. Tolerance marker (only displayed for active tolerance weighing)
7. Percent determination mode

Operation	Display
⇒ Call up menu item "M4 Percent weighing" (see chap. 9.1) ⇒ Press -button	
01 Reference weight – numeric entering of the reference weight	
⇒ Use the cursor (►) to select menu item "01 Reference weight"	
⇒ Press the -key; the current menu item blinks. Use the arrow keys, to enter the reference weight and confirm by pressing the -key.	
⇒ Press the -key; the balance is now in percent determination mode.	
⇒ Now you can place the test objects onto the weighing plate; the percentage in regards to the reference object is displayed	

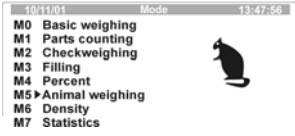
01 Reference weight – determination of reference weight through weighing	
⇒ Call up Percent weighing mode	 
⇒ Press  -button. Put on reference weight; if necessary, tare first	
⇒ Press  -key, the weight is taken as reference (100%). Min. weight: readout d x 1000	
⇒ Now you can place the test objects onto the weighing plate; the percentage is displayed	
02 Decimal places	
⇒ Use the cursor () to select menu item "02 Decimal places"	
⇒ Press the  -key; the current menu item blinks. Use the arrow keys, to enter the fractional digit, confirm by pressing the  -key.	
⇒ Press the  -key; the balance is now in percent determination mode.	
03 Check weighing 04 Filling 05 Statistics 06 Run	
⇒ Use the cursor () to select menu item "03 - 06"	
⇒ All other steps are the same as for combination Parts counting /Statistics (chpt. 9.1.2)	

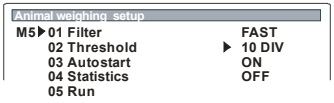
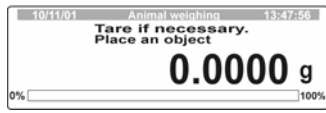
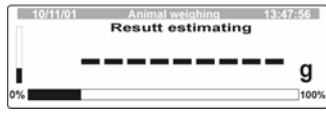
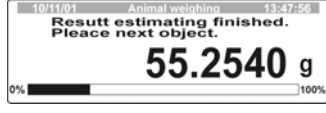
9.1.6 Animal weighing (dynamic weighing)

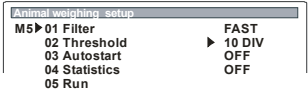
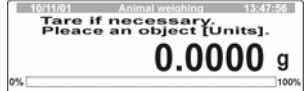
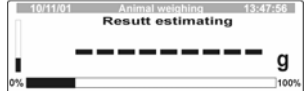
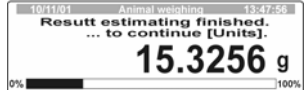
For unsteady items to be weighed (e.g. animals) or strong vibrations you can activate the dynamic weighing function with automatic or manual start. During a certain period of time the balance determines weight values and calculates an average.

In **automatic start** measuring starts automatically as soon as the weight changes.

In **manual start** you trigger measuring by actuating the -key.

Operation	Display
⇒ Call up menu item "M5 Animal weighing" (see chap. 9.1) ⇒ Press -button	
01 Filter – filter for adjustment to the environmental conditions Vibrations are filtered out by increasing the number of measuring cycles.	
⇒ Use the cursor (►) to select menu item "01 Filter"	
⇒ Press the -key; the current menu item blinks. Use the arrow keys, to enter the sensitivity of the filter and confirm by pressing the -key. very slow slow standard fast very fast (insensitive, very busy set-up location) ↓ (sensitive very quiet setup location)	

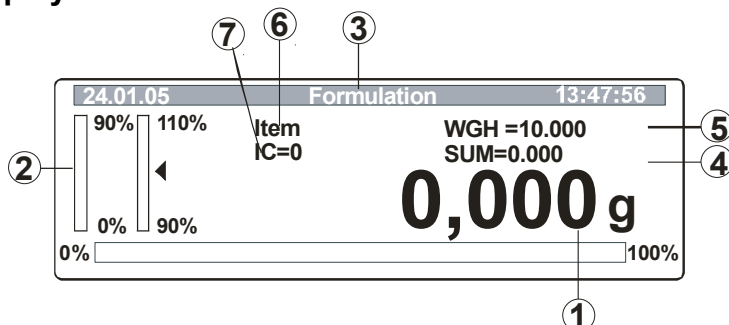
02 Threshold (precondition: 03 - Auto start activated)	
⇒ Use the cursor (►) to select menu item "02 Threshold value"	
⇒ Press the  -key; the current menu item blinks. Use the arrow keys, to set how many measurements are enlisted to determine the mean value. Confirm with  -key. 10 DIV ↓ 1000 DIV	
03 Weighing with automatic start After selecting your parameters and with 03 Auto start activated, carry out weighing as follows:	
⇒ Use the cursor (►) to select menu item "05 Run" ; confirm with the  -key	
⇒ If you are using a weighing container use the  -key for taring	
⇒ Put goods to be weighed on weighing plate	
⇒ Dynamic weighing is started automatically.	
⇒ When weighing is complete the weight is shown in the display	
⇒ To start a new weighing cycle relieve the balance	
⇒ Press  -key to return to menu	

03 Weighing with manual start After selecting your parameters and with 03 Auto start deactivated, carry out weighing as follows:	
⇒ Use the cursor (►) to select menu item "05 Run" ; confirm with the  -key	
⇒ If you are using a weighing container use the  -key for taring	
⇒ Put goods to be weighed on weighing plate	
⇒ The dynamic weighing is started by pressing the  -key	
⇒ When weighing is complete the weight is shown in the display	
⇒ To start a new weighing cycle relieve the balance and press the  -key	
⇒ The  -key will take you back to the menu	

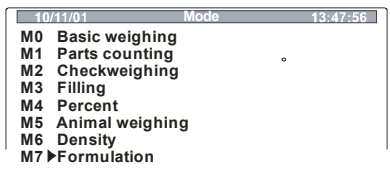
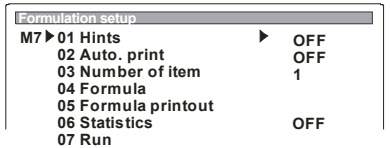
9.1.7 Formulation

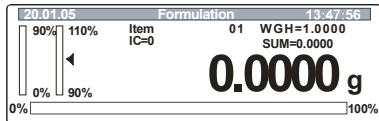
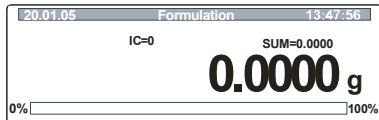
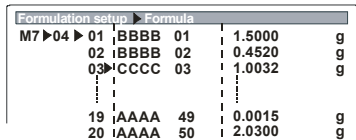
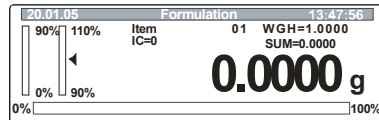
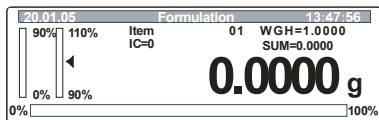
The formula function allows to add on various components of a mixture. To check, the overall weight of all components can be called up.

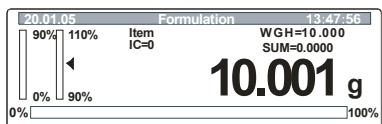
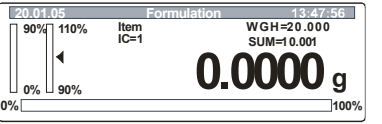
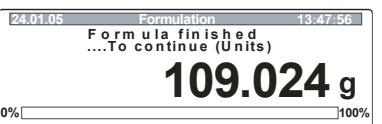
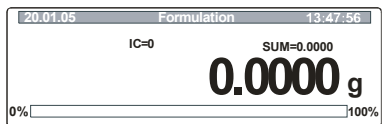
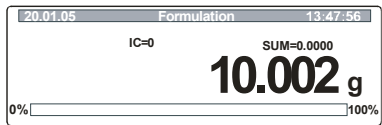
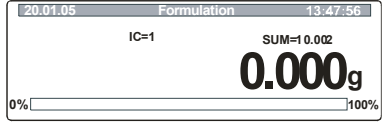
Overview of display:

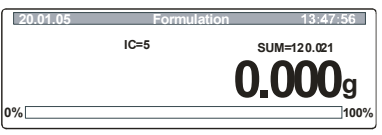
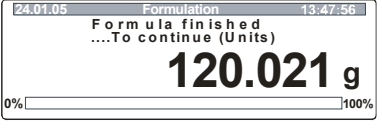


1. Current net weight
2. Weighing assistance coarse /fine)
3. Operating mode
4. Sum memory
5. Target value of the ingredients (determined in parameter 04 Formula)
6. Designation of the ingredients (determined in parameter 04 Formula)
7. Number of the added on ingredients

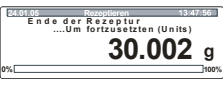
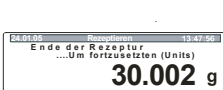
Operation	Display
⇒ Call up menu item "M7 Formulation" (see chap. 9.1) ⇒ Press -button	
01 – 07 Parameter selection	
⇒ Use the cursor (►) to select menu items "01 - 07"	

⇒ Press the  -key; the current menu item blinks.				
01 Hints	yes	Data of the individual ingredients of a formula are shown on the display		
	no	Setting for producing a mixture by weighing		
02 Autom. print.	yes	Autom. Data output		
	no	No autom. Data output		
03 Number of items		Memory space for 20 ingredients		
04 Formulation		Designation of the ingredients (max 10 characters) and quantity		
05 Formula printout		Printout of formula		
06 Statistics		Combination with statistics		
07 Run		Call up of formula mode		
⇒ Use the arrow keys to activate/deactivate parameters, confirm your selection with the  -key				
⇒ Use the cursor () to select menu item “05 Run”; confirm with the  -key, the balance is now in formula mode.				
⇒ From here, you start adding on the various ingredients for a mixture:				
Producing a mixture according to a defined formula				
⇒ If you are using a weighing container use the  key for taring				

⇒ Add on ingredient 1; see target value (WGH) on the display	
⇒ As soon as the weighing value is stable, press  key, ingredient 1 is stored, the display shows the target value ingredient 2 (WGH), total of the saved ingredients (SUM), as well as the number of already poured ingredients (IC)	
⇒ Add on ingredient 2; see target value (WGH) on the display ⇒ Repeat these steps until you have added all ingredients.	
⇒ Press  -button	
⇒ Confirm completion of the mixture with the  -key	
⇒ The  -key will take you back to the menu	
Generating a mixture by adding on	
⇒ Parameter selection: 01 Hints no 02 Autom.printout yes – if formula printout required Use the cursor (►), trigger menu item “04 Formula“; confirm by pressing the  -key.	
⇒ If you are using a weighing container use the  -key for taring	
⇒ Add on ingredient 1	
⇒ As soon as the weighing value is stable, press  key, ingredient 1 is stored, the display shows the total of the saved ingredients (SUM), as well as the number of already poured ingredients (IC) The weight display returns to zero.	

⇒ Add ingredient 2; as soon as the weighing value is stable, press  -key	
⇒ Repeat this step until you have added all ingredients.	
⇒ Enter last ingredient and confirm with  -key	
⇒ Press  -key; formula is printed out.	
⇒ The  -key will take you back to the menu	

Example for a data output (standard printout)

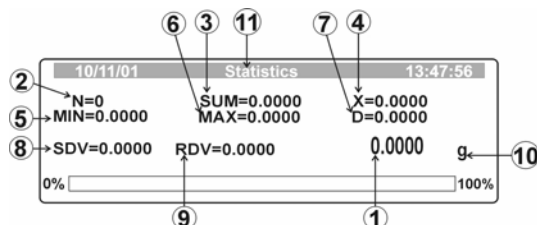
Key	Display	GLP Parameters	Data output
		P2 03 Printout Time 0: no P2 04 Printout Date 0: no P2 05 User printout 0: no P2 06 Proj. Printout 0: no P2 07 ID- printout 0: no P2 08 Cal. printout 0: no	1 10,000 g 2 10,000 g 3 10,002 g ----- SUM 30,002 g
		P2 03 Printout Time 1: yes P2 04 Printout Date 1: yes P2 05 User printout 1: yes P2 06 Proj. Printout 1: yes P2 07 ID- printout 1: yes P2 08 Cal. printout 1: yes	Date: 16/01/2004 Time: 13:12:30 User: Mustermann Project: xxxxx Balance no: :WL041055 Last calibration: ----- 16/01/2004 13:02 Automatic calibration Deviation: 0.0001 g ----- 1 10,000 g 2 10,000 g 3 10,002 g ----- SUM 30,002 g

9.1.8 Statistics:

The statistic function is possible for display values in g, piece or %.

By actuating the -key the currently displayed value is saved for the statistics.

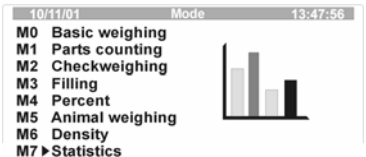
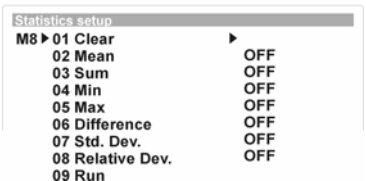
Overview of display:

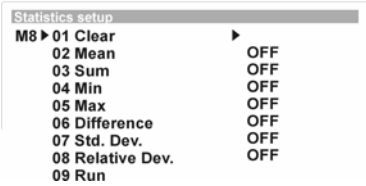
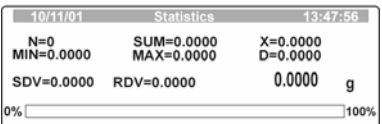


1. Current net weight
2. Number of all weighing procedures
3. Sum of all measuring values
4. Mean Value
5. Smallest value
6. Largest value
7. Difference max - MIN

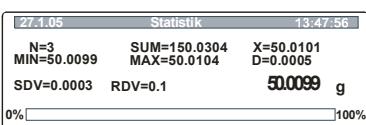
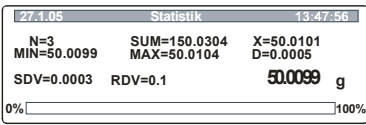
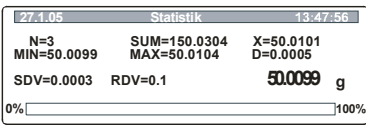
$$8. \text{ Standard deviation SDV: } \sqrt{\frac{n \sum x^2 - (\sum x)^2}{n(n-1)}}$$

9. Variance RDV.: (SDV / average) * 100%
10. Weighing unit
11. Status bar

Operation	Display
⇒ Call up menu item "M8 Statistics" (see chap. 9.1) ⇒ Press -button	
01 – 08 Parameter selection	
⇒ Use the cursor (►) to select menu items "01 - 08"	

⇒ Press the  -key; the current menu item blinks. 01 Clear Delete data 02 Sum Sum of all weighing procedures 03 Mean value Mean Value 04 Min Minimum 05 Max Maximum 06 Difference Difference min/max 07 Stand. devi. Standard Deviation 08 Rel. devi. Variance 09 Run Call up statistic menu	 Statistics setup M8 ▶ 01 Clear ▶ 02 Mean OFF 03 Sum OFF 04 Min OFF 05 Max OFF 06 Difference OFF 07 Std. Dev. OFF 08 Relative Dev. OFF 09 Run
⇒ Use the arrow keys to activate/deactivate parameters, confirm your selection with the  -key	
⇒ Press the  -key; the balance is now in statistics mode. All your activated menu items are now shown in the display ⇒ By actuating the  -key the currently displayed value is saved for the statistics.	 10/11/01 Statistics 13:47:56 N=0 SUM=0.0000 X=0.0000 MIN=0.0000 MAX=0.0000 D=0.0000 SDV=0.0000 RDV=0.0000 0.0000 g 0%  100%
⇒ By actuating the  -key you can print your statistical results on a connected printer.	Printout (Example): N : 5 SUM : 169.6880 g X : 33.9376 g Min : 0.0000 g MAX : 100.0012 g D : 100.0012 g SDV : 42.2166 g RDV : 124,4 %
⇒ The  -key will take you back to the menu	

Example for a data output during a measuring sequence:

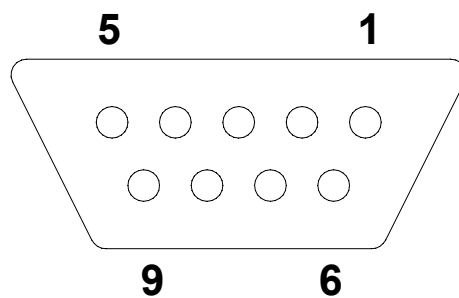
Key	Display	GLP Parameters	Data output
		P2 03 Printout Time 0: no P2 04 Printout Date 0: no P2 05 User printout 0: no P2 06 Proj. Printout 0: no P2 07 ID- printout 0: no P2 08 Cal. printout 0: no	3 50,0099 g
		P2 03 Printout Time 1: yes P2 04 Printout Date 1: yes P2 05 User printout 1: yes P2 06 Proj. Printout 1: yes P2 07 ID- printout 1: yes P2 08 Cal. printout 1: yes	Date: 16/01/2004 Time: 13:12:30 User: Mustermann Project: xxxxx Balance no: :WL041055 Last calibration: ----- 16/01/2004 13:02 External calibration: 0.0001g ----- 3 50.0099 g
			N : 3 SUM : 150.0304 g X : 50.0101 g Min : 50.0099 g MAX : 50.0104 g D : 0.0005 g SDV : 0.0003 g RDV : 0.01 %

10 Data output

10.1 Technical data

- 8 data bits
- Baud rate selectable at 2400, 4800, 9600 and 19200 Baud
- Miniature plug-in necessary (9 pole D-Sub)
- For operation with interface faultless operation is only ensured with the correct KERN – interface cable (max. 2m)

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



Pin 2:	Rxd
Pin 3:	Txd
Pin 4:	DTR
Pin 5:	GND
Pin 6:	Tara
Pin 7:	RTS
Pin 8:	CTS
Pin 9:	Print

10.3 Remote control instructions

Commands	Function
R CR LF	Reset to manufacturer setting - reset
PC CR LF	Command to call up the values of the balance
S CR LF	Measuring value stable
SI CR LF	Measuring value instable
SU CR LF	Last stable measuring value
SU CR LF	Current measuring value
Z CR LF	Zeroing stable value
ZI CR LF	Zeroing instable value
T CR LF	Taring stable value
TI CR LF	Taring instable value
C0 CR LF	Cancel continuous data output
C1 CR LF	Start continuous data output
CU0 CR LF	Cancel continuous data output (operating mode)
CU1 CR LF	Start continuous data output (operating mode)
NB CR LF	Serial no. of balance
FS CR LF	Weighing range max.
RV CR LF	Software issue
PD CR LF	Date display
PD CR LF	Time display
PMCR LF	Operating mode
PS CR LF	Balance parameters are printed out
B CR LF	Tone
ER CR LF	Call up error message
DS CR LF	Display check
CS CR LF	Delete display check
DH CR LF	Display check header
CH CR LF	Delete display check header
DF CR LF	Display check bar graph (footer)
CF CR LF	Delete display check bar graph (footer)
CL CR LF	Start internal adjustment from outside
KL CR LF	Lock keyboard
KU CR LF	Unlock keyboard
E0 CR LF	Keytone off
E1 CR LF	Keytone on
O0 CR LF	Balance off
O1 CR LF	Balance on
A0 CR LF	Auto zero off
A1 CR LF	Auto zero on
TC0 CR LF	Automatic adjustment off
TC1 CR LF	Automatic adjustment on

11 Service, maintenance, disposal

11.1 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.

11.2 Service, maintenance

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

Before opening, disconnect from power supply.

11.3 Disposal

Disposal of packaging and appliance must be carried out by operator according to valid national or regional law of the location where the appliance is used.

12 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:

<i>Fault</i>	<i>Possible cause</i>
<i>The displayed weight does not glow.</i>	• <i>The balance is not switched on.</i> • <i>The mains supply connection has been interrupted (mains cable not plugged in/faulty).</i> • <i>Power supply interrupted.</i>
<i>The displayed weight is permanently changing</i>	• <i>Draught/air movement</i> • <i>Table/floor vibrations</i> • <i>Weighing plate has contact with other objects.</i> • <i>Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)</i>
<i>The weighing result is obviously incorrect</i>	• <i>The display of the balance is not at zero</i> • <i>Adjustment is no longer correct.</i> • <i>Great fluctuations in temperature.</i> • <i>Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)</i>

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