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Operating instruction
Platform/floor scales

KERN VB/BVBP

Version 2.2
06/2008
GB

VB/BVBP-BA-e-0822

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GB

KERN VB/BVBP

Version 2.2 06/2008

Operating instruction

Platform/floor scales

English

Table of Contents

English

1 Technical data

KERN	VB 6K1DM	VB 15K2DM	VB 30K5DM
Readability (d)	1 g//2 g	2 g//5 g	5 g//10 g
Weighing range (max)	3 kg//6 kg	6 kg//15 kg	15 kg//30 kg
Minimum load (Min)	20 g	40 g	100 g
Verification value (e)	1/2 g	2/5 g	5/10 g
Verification class	III	III	III
Reproducibility	1 g//2 g	2 g//5 g	5 g//10 g
Linearity	+/-1 g/2 g	+/-2 g/5 g	+/-5 g/10 g
Recommended adjustment weight, not added (class)	5 kg (M2)	12 kg (M2)	25 kg (M2)
Stabilization time (typical)	2-3 sec.		
Weighing Units	kg / lb		
Auto Off	optional cut-off after 3 min;		
Operating temperature	- 10° C .... + 40° C		
Warm-up time	10 minutes		
Humidity of air	15 % - 85 % (non-condensing)		
Housing terminal (B x D x H) mm	200 x 150 x 164 (with feet); 200 x 140 x 84 (without feet)		
Housing platform (B x D x H) mm	300 x 300 x 65 (platform)		380 x 380 x 90
Weighing plate mm	300 x 300		380x380
Weight kg (net)	5.5		11
Rechargeable battery	Option (factory-assembly only)		
Interface RS232	Option (factory-assembly only)		

English

KERN	VB 30K5DSM	VB 60K10DM	VB 60K10DLM
Readability (d)	5 g//10 g	10 g//20 g	10 g//20 g
Weighing range (max)	15 kg//30 kg	30 kg//60 kg	30 kg//60 kg
Minimum load (Min)	100 g	200 g	200 g
Verification value (e)	5/10 g	10/20 g	10/20 g
Verification class	III	III	III
Reproducibility	5 g//10 g	10 g//20 g	10 g//20 g
Linearity	+/-5 g/10 g	+/-10 g/20 g	+/-10 g/20 g
Recommended adjustment weight, not added (class)	25 kg (M2)	50 kg (M2)	50 kg (M2)
Stabilization time (typical)	2-3 sec.	2-3 sec.	2-3 sec.
Weighing Units	kg / lb		
Auto Off	optional cut-off after 3 min;		
Operating temperature	- 10° C .... + 40° C		
Warm-up time	10 minutes		
Humidity of air	15 % - 85 % (non-condensing)		
Housing terminal (B x D x H) mm	200 x 150 x 164 (with feet); 200 x 140 x 84 (without feet)		
Housing platform(B x D x H) mm	300 x 300 x 65	380 x 380 x 90	480 x 480 x 96
Weighing plate mm	300 x 300	380 x 380	480 x 480
Weight kg (net)	5,5	11	21
Rechargeable battery	Option (factory-assembly only)		
Interface RS232	Option (factory-assembly only)		

KERN	VB 150K20DM	VB 150K20DLM	VB300K50DLM
Readability (d)	20 g//50 g	20 g//50 g	50 g//100 g
Weighing range (max)	60 kg//150 kg	60 kg//150 kg	150 kg//300 kg
Minimum load (Min)	400 g	400 g	1 kg
Verification value (e)	20/50 g	20/50 g	50/100 g
Verification class	III	III	III
Reproducibility	20 g//50 g	20 g//40 g	50 g//100 g
Linearity	+/-20 g/50 g	+/-20 g/40 g	+/-50 g/100 g
Recommended adjustment weight, not added (class)	120 kg (M2)	120 kg (M2)	250 kg (M2)
Stabilization time (typical)	2-3 sec.	2-3 sec.	2-3 sec.
Weighing Units	kg / lb		
Auto Off	optional cut-off after 3 min;		
Operating temperature	- 10° C .... + 40° C		
Warm-up time	10 minutes		
Humidity of air	15 % - 85 % (non-condensing)		
Housing terminal (B x D x H) mm	200 x 150 x 164 (with feet); 200 x 140 x 84 (without feet)		
Housing platform(B x D x H) mm	380 x 380 x 90	480 x 480 x 96	480 x 480 x 96
Weighing plate mm	380 x 380	480 x 480	480 x 480
Weight kg (net)	11	21	21
Rechargeable battery	Option (factory-assembly only)		
Interface RS232	Option (factory-assembly only)		

KERN	BVBP 600K200	BVBP 1.5T0.5	BVBP 3T1M
Readability (d)	200 g	500 g	1000 g
Weighing range (max)	600 kg	1500 kg	3000 kg
Minimum load (Min)	4 kg	10 kg	20 kg
Verification value (e)	200 g	500 g	1000 g
Verification class	III	III	III
Reproducibility	200 g	500 g	1000 g
Linearity	+/-200 g	+/-500 g	+/-1000 g
Recommended adjustment weight, not added (class)	500 kg (M2)	1200 kg (M2)	2500 kg (M2)
Stabilization time (typical)	2-3 sec.	2-3 sec.	2-3 sec.
Weighing Units	kg / lb		
Auto Off	optional cut-off after 3 min;		
Operating temperature	- 10° C .... + 40° C		
Warm-up time	10 minutes		
Humidity of air	15 % - 85 % (non-condensing)		
Housing terminal (B x D x H) mm	200 x 150 x 164 (with feet); 200 x 140 x 84 (without feet)		
Weighing plate mm **SM:**	1000 x1000 x 125	1000 x1000 x 125	
M:	1500 x1250 x 125	1500 x1250 x 125	1500 x1250x125
Weight kg (net) **SM:**	105	105	
M:	175	175	175
Rechargeable battery	Option (factory-assembly only)		
Interface RS232	Option (factory-assembly only)		

2 Declaration of conformity

KERN & Sohn GmbH
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Declaration of conformity

Declaration of conformity for apparatus with CE mark
Konformitätserklärung für Geräte mit CE-Zeichen
Déclaration de conformité pour appareils portant la marque CE
Declaración de conformidad para aparatos con marca CE
Dichiarazione di conformità per apparecchi contrassegnati con la marcatura CE

English We hereby declare that the product to which this declaration refers conforms to the following standards.

English Wir erklären hiermit, daß das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.

Français Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.

Español Manifestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las normas siguientes

Italiano Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

Electronic Scale: KERN VB, BVBP

Mark applied	EU Directive	Standards
CE	89/336/EEC EMC	EN 55022
	73/23/EEC Low Voltage	EN 60950

Date: 03.01.2007 **Signature:**

Gottl. KERN & Sohn GmbH
Management

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English

English We hereby declare that the product to which this declaration refers conforms to the following standards.
This declaration is only valid with the certificate of conformity by a notified body.

English 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 declarátión solo será válida acompañada del certificado de conformidad de una institución nombrada.

Italiano Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.
Questa dichiarazione sarà valida solo se accompagnata dal certificato di conformità di un ente riconosciuto.

Model:	**KERN VB, BVBP**

EU Directive	**Standards**	**EC-type-approval certificate no.**	**Issued by**
90/384/EEC	EN 45501	T 5783	NMI

Date: 03.01.2007

Signature:

Gottl. KERN & Sohn GmbH
Management

3 Appliance overview

Model VB

Model VB with tripod VB-A08 (Option)

Model BVBP with loading ramp and tripod (Option)

English

4 Basic Information (General)

4.1 Proper use

The balance you purchased is intended to determine the weighing value of material to be weighed. It is intended to be used as a “non-automatic“ balance, i.e. the material to be weighed is manually and carefully placed in the centre of the weighing 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 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.

4.3 Warranty

Warranty claims shall be voided in case

- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened
- Mechanical damage and damage caused by media, liquids
- Natural wear and tear
- The appliance is improperly set up or incorrectly electrically connected
- The measuring system is overloaded

4.4 Monitoring of Test Resources

In the framework of quality assurance the measuring-related properties of the balance and, if applicable, the testing weight, must be checked regularly. The responsible user must define a suitable interval as well as type and scope of this test. Information is available on KERN's home page (www.kern-sohn.com) with regard to the monitoring of balance test substances and the test weights required for this. In KERN's accredited DKD calibration laboratory test weights and balances may be calibrated (return to the national standard) fast and at moderate cost.

5 Basic Safety Precautions

5.1 Pay attention to the instructions in the Operation Manual

Carefully read this operation manual before setup and commissioning, even if you are already familiar with KERN balances.

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.

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 charging of the material to be weighed, weighing container and windshield.

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

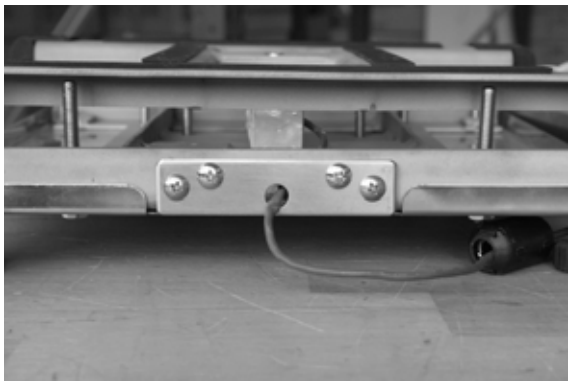
7.2 Setup

The balance must be installed in a way that the weighing plate is exactly in horizontal position.
Setup of BVBP see chapter 14.

7.2.1 Assembly instructions for the use of the tripod VB-A08/A09 (Option)

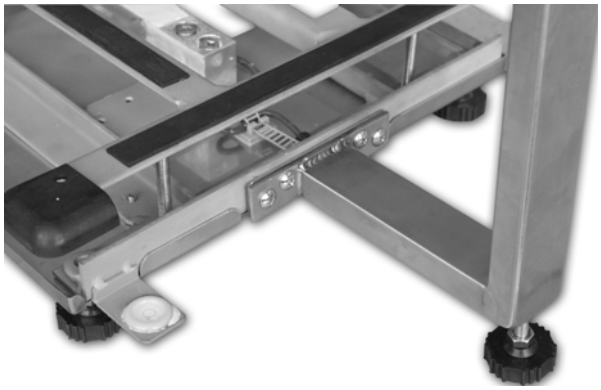
For elevating the display unit for weighing plate size 300 x 300 x 65 mm, the tripod **VB-A08**, for weighing plate ≥ 380 x 380 x 96 mm, the tripod **VB-A09** must be used.

1. Remove weighing plate



2. Unscrew assembly plate and replace it by the tripod
3. Screw tripod to the platform

VB-A08:



4. Screw-in foot screw till to a safe stand.
   Make sure that the level air bubble is within the prescribed circle.

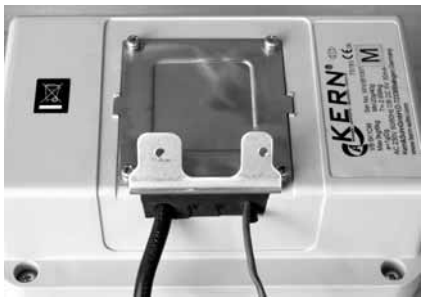
VB-A09:

At model **VB-A09** first screw-on the support for the display unit.

English

5. Unscrew table foot of the display unit

6. Unscrew cover plate and replace it by the cover plate of the tripod



7. Screw down cover plate

8. Screw tripod support on the cover plate according to fig.

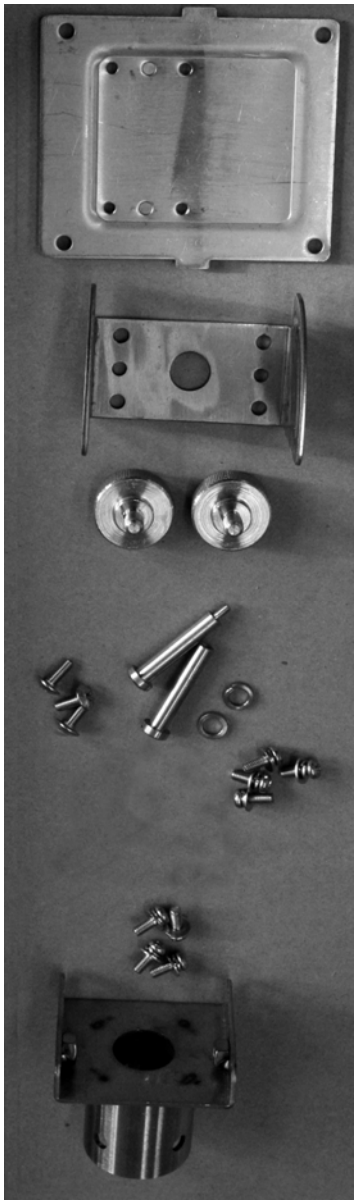
9. Fix the display unit to the tripod using the safety screw (1).

10. Screw down turning knobs (2, 3) for positioning the display

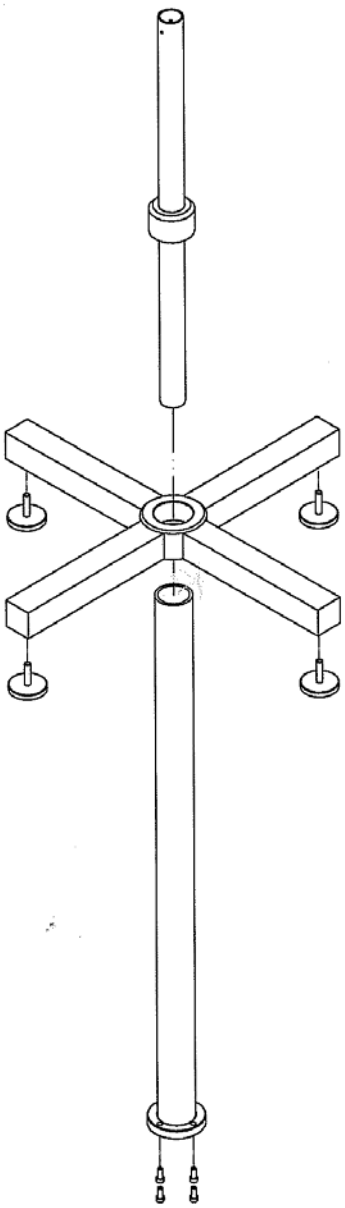
7.2.2 Assembly instructions for the use of the tripod BVBP-A01 (Option)

Tripod with height adjustment, maximum height 1550 mm

Scope of delivery - Assembly tripod:



1. Assemble the single parts acc. to figure



2. Screw-on holder of display part

English

Assembly tripod - Display unit:

1. Screw-off table foot of the display unit

2. Screw-off cover plate and replace it with the cover plate of the tripod

3. Screw-on cover plate

4. Screw tripod holder on the cover plate acc. to figure

5. Fix display unit on the tripod using the securing screw (1).

6. Screw-in turning knobs (2, 3) for display positioning

7.2.3 Unpacking

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

7.2.4 Scope of delivery/serial accessories

KERN VB / BVBP

- Platform and display unit
- Mains cable
- Operating Manual
-

Models BVBP:

Set of locator plates

Wall mount bracket

Cover plate display device

7.3 Mains connection

Power supply is achieved via integrated power pack. The voltage value printed on the type plate must match the local voltage. Connect the plug of the mains cable to the mains.

7.4 Storage battery operation (optional)

If the appliance was ordered with this option, it will be delivered with the storage battery pre-installed.
As long as the balance is connected to the mains it will be supplied from the mains.
When it is cut-off from the mains, it will switch over to battery operation.
To save storage battery life, you can activate a function that triggers a cut-off after weighing is completed. (selection of time or continuous mode, options in menu).
To increase the service life of the storage battery, it is also possible to turn off the display backlighting.
When the storage battery is low, the battery symbol appears on the display.
If the balance continues to be operated and does no longer work properly, the display will be turned off with the exception of the battery symbol.
After 1 minute the balance will then be completely turned off.

The balance monitors the state of the storage battery and controls the charging process automatically. The storage battery display is active whilst the battery is being charged.

7.5 Initial Commissioning

In order to obtain exact results with the electronic balances, your balance must have reached the operating temperature (see warming up time chap. 1). During this warming up time the balance must be connected to the power supply (mains, accumulator or battery).

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

7.6 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out during the initial start-up, after change in location and variation of surrounding temperature. To receive accurate measuring values it is also recommended to adjust the balance periodically in weighing operation.

Carry out adjustment with the help of the recommended adjustment weight (see chapter 1 “Technical Specifications”).

Procedure when adjusting:

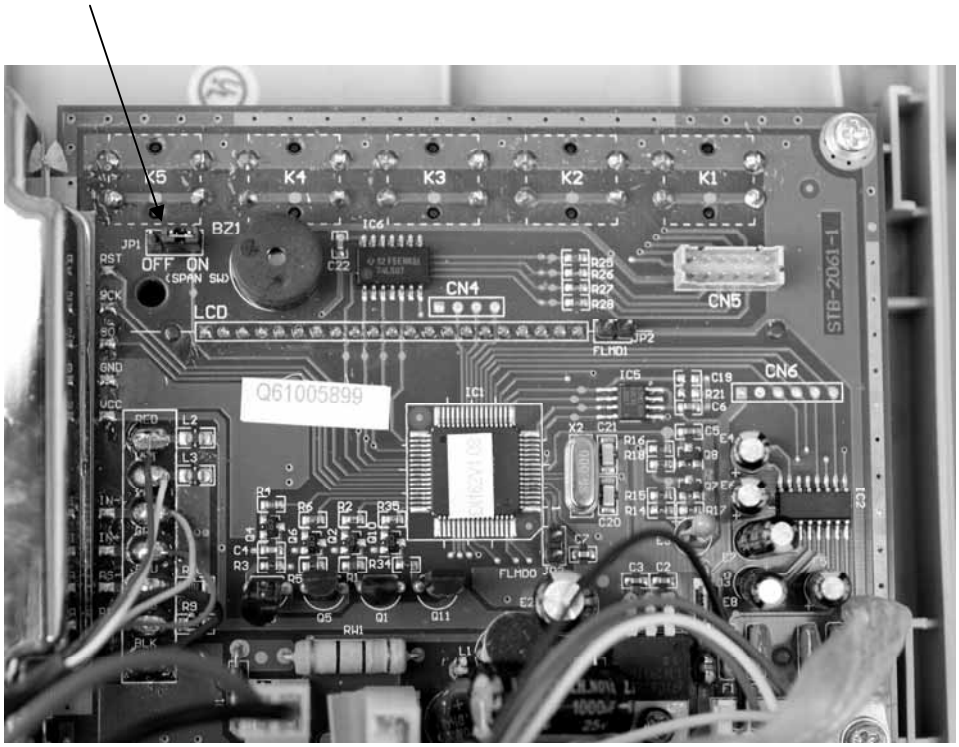
Note: Access to the adjustment switch of verified appliances can only be gained by destroying the safety seal area (first unscrew terminal from platform or tripod). This invalidates the verification.

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

Remove 6 screws at the rear of the display and keyboard unit, as shown in the picture.

Open up the top of the display and keyboard unit by pulling it upwards.

To enable the adjustment function set **JP1** (SPAN SW) to **On** (see arrow).



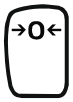
After having finished adjustment, reset **JP1** (SPAN SW) to **OFF** and carefully close the case .

English

7.7 Checking the weighing range, adjustment weight input and adjustment

		Display
System requirements: Set adjustment switch to **ON**		
Keep pressing the key →0← and actuate the keys ← TARE TARE one after the other.	Flashing ->	**CAL**
Check / possibly change constant of gravitation by pressing keys ↑ and ←		**GO** **9.7946**
Operate the →0← key		**dP**
Actuate the ← key required to change the position of the decimal point.	VB6K1DM VB15K2DM VB30K5DSM VB30K5DM	**000.000** **000.000** **000.000** **000.000**
	VB60K10DM VB60K10DLM VB150K20DM VB150K20DLM VB300K50DLM BVBP600K200 BVBP1.5T0.5 BVBP3T1M	**0000.00** **0000.00** **0000.00** **0000.00** **0000.00** **000000.0** **000000.0** **0000000**
Confirm by pressing the →0← key		**CAP 1**
Check / change maximum load (max.) for balance using the keys ↑ and ← weighing range 1 (see table)	VB6K1DM VB15K2DM VB30K5DSM VB30K5DM VB60K10DM VB60K10DLM VB150K20DM VB150K20DLM VB300K50DLM	**6** **15** **30** **30** **60** **60** **150** **150** **300**

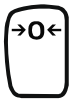
BVBP600K200	**600**
BVBP1.5T0.5	**1500**
BVBP3T1M	**3000**

Confirm by pressing the  key

d 1

Press  key until the display (model-related) shows the following value:
(resolution weighing range 1)

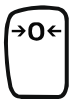
VB6K1DM	**2**
VB15K2DM	**5**
VB30K5DSM	**10**
VB30K5DM	**10**
VB60K10DM	**2**
VB60K10DLM	**2**
VB150K20DM	**5**
VB150K20DLM	**5**
VB300K50DLM	**10**
BVBP600K200	**2**
BVBP1.5T0.5	**5**
BVBP3T1M	**1**

Confirm by pressing the  key

CAP 2

Check / change maximum load (max.) for balance using the keys  and 
of weighing range 2
(see table)

VB6K1DM	**3**
VB15K2DM	**6**
VB30K5DSM	**15**
VB30K5DM	**15**
VB60K10DM	**30**
VB60K10DLM	**30**
VB150K20DM	**60**
VB150K20DLM	**60**
VB300K50DLM	**150**
BVBP600K200	**600**
BVBP1.5T0.5	**1500**
BVBP3T1M	**3000**

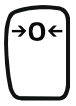
Confirm by pressing the  key

d 2

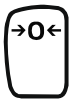
English

Press  key until the display (model-related) shows the following value:
(resolution weighing range 2)

VB6K1DM	**1**
VB15K2DM	**2**
VB30K5DSM	**5**
VB30K5DM	**5**
VB60K10DM	**1**
VB60K10DLM	**1**
VB150K20DM	**2**
VB150K20DLM	**2**
VB300K50DLM	**5**
BVBP600K200	**2**
BVBP1.5T0.5	**5**
BVBP3T1M	**1**

Confirm by pressing the  key — **Unit kg**

You may use the  key to switch between kg and lb
. — **kg**

Confirm by pressing the  key.
Weighing pan must be unloaded — **CAL 00**

Confirm by pressing the  key, zero point is being reset.
Wait until **CAL SP** appears on the display. — **--------**

Use the keys  and  to make your selections and select the size of the used adjustment weight, see chapter 1 “Technical Specifications”, e. g. 5 kg. If a different weight is displayed, use the arrow keys to change the weight value.
 Number is increased,  shift digit — **CAL SP : 5.000**

Place the adjustment weight onto the weighing pan. — **CAL SP: 5.000**

Confirm by pressing the  key

----

5.000

Remove the adjustment weight.
Adjustment is completed.

0.000

Set adjustment switch to **OFF.**
Attach the keyboard top and fasten it with the 6 screws.

Check, if adjustment is accurate by placing, one at a time, the 1/3, 2/3 test weights as well as the maximum weight on the balance.

7.8 Safety seal area for adjustment

General introduction:

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

a) For commercial transactions if the price of goods is determined by weighing.

b) For the production of medicines in pharmacies as well as for analyses in the medical and pharmaceutical laboratory.

c) For official purposes

d) For manufacturing final packages

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

The arrows show the two locking pins that are used by the gauging office to attach seals.

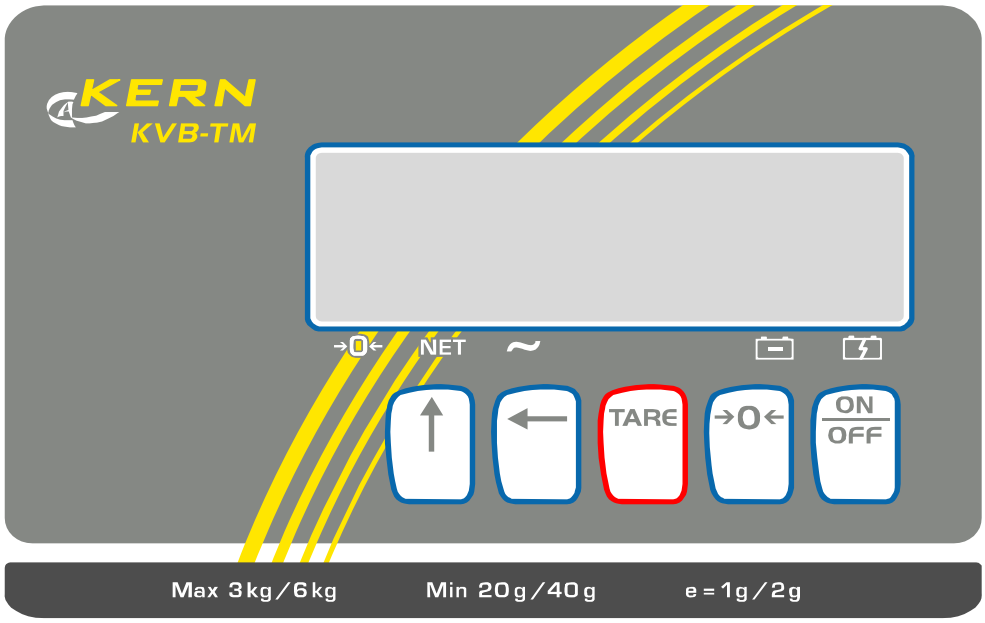
Verification instructions

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!

8 Operation

8.1 Operating elements

8.1.1 Overview of display



→0←	**Reset display** Weight display at zero
NET	**Net display** Illuminated when tare value is stored
~	**Stability display** Illuminated when display of weight value is shown as stable
	Storage battery status display Almost empty, please charge
	Charging storage battery
kg	Weighing unit kg
lb	Weighing unit lb
HIGH	Weighing value above upper tolerance limit
OK	Weighing value within tolerance range (between upper and lower limit)
LOW	Weighing value below lower tolerance limit and > 1 d

English

8.1.2 Keyboard overview

Numeric value key / unit switch-over
Up arrow key / output via interface (during activation)

Numeric key / left arrow key

Taring key

Zeroing key

ON/OFF key

8.2 Operation

8.2.1 How to turn on/off balance

kg

e.g. -> **u 1.08**

To start the balance, press the ON/OFF key.
The balance will carry out a self-test

8,8,8,8,8,8

8 8 8 8 8 8

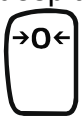
The balance is ready for weighing when the weight display appears.

0.00

8.2.2 Resetting balance to zero

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

kg

If the balance does not display exactly zero despite the weighing pan being unloaded, press the 

key and the balance starts resetting to zero.
Your balance will be set to zero after a short standby time. **0.00**

8.2.3 Taring

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

kg

Place empty tare container on the weighing plate. The total weight of the container is displayed. **0.28**

Zero will be displayed once taring is complete and the symbol **NET** for net weight will appear. The balance is now ready for operation. **0.00**

Information:
The balance is able to only store one taring value at a time.
When the balance is unloaded the saved taring value is displayed with negative sign.
To delete the stored tare value, unload the weighing tray and afterwards press the **TARE** key.

8.2.4 Entering the tare value manually

kg

If the numeric value of the tare weight (e. g. 0.28 kg) is known, this value may be entered by using the cursor keys.

0.00

To enter the tare weight, use the cursor key  to select the digit to be changed. The selected digit is flashing.

0.0“0“

The numeric value may be changed by pressing the cursor key  for numeric values.

0.0“8“

This is the way to enter the complete tare weight (e. g. 0.28 kg).

0.28

A subsequent actuation of the 

-key will store the value. Pressing again as well as turning off the balance will delete the value.

0.00

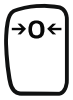
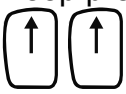
8.2.5 Weighing units switch-over

This function is only available if bit 3 in SPEC 28 is set at 0, as otherwise the actuation of the key triggers an output via the interface.

	Display	**kg**
Place a weight (e. g. 440 g) onto the platform.	**0.400**	**kg**
Each actuation of the cursor key  for the numeric value switches the weighing units from kg to lb and vice versa.		**lb**

8.2.6 Tolerance weighing

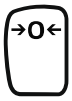
Weighing mode **0.0000 kg**

Keep pressing the key  and actuate the keys 
 one after the other. **8 8 8 8 8 8**

SPT1 / 00.000

To enter the lower tolerance limit, use the cursor key
 for digits to select the digit to be changed. The selected digit is flashing. **00.000“0“**

The numeric value may be changed by pressing the
cursor key  for numeric values. **00.“7“000**
This is the way to enter the complete lower tolerance limit.

Press the  key to carry out the next step. **SPT2 / 00.000**

To enter the upper tolerance limit, use the cursor key
 for digits to select the digit to be changed. The selected digit is flashing. **00.000“0“**

The numeric value may be changed by pressing the
cursor key  for numeric values. **0“1“.0000**
This is the way to enter the complete upper tolerance limit.

To store the setting, press the  key. **0.0000**

This function will remain stored even in a shut-off state. To disable this function, call it and reset the values to 0.00.

Example:

Place a 0.5 kg weight onto the weighing plate	**0.5000**	**kg**	**Low**
Add a 0.4 kg weight on the weighing plate	**0.9000**	**kg**	**Ok**
Add a 0.2 kg weight on the weighing plate	**1.1000**	**kg**	**High**
Remove all weights from the weighing plate	**0.0000**	**kg**	

In order to support the display you can activate a buzzer signal in the SPEC 1 bit 1 menu. The buzzer will be activated when the weighing value is outside the tolerance. (For setting see chapter 9.2).

If bit 0 is set in the SPEC 2 menu, the value SPT2 is used to enter the percentage by which the upper tolerance limit lies above the lower tolerance limit. (For setting see chapter 9.2).

Example: SPT1 = 0.200 kg and SPT2 = 1.500; from this follows an upper limit of 0.300 kg.

9 Settings

9.1 Call-up menu structure

		kg
Balance is in weighing mode		**0,000**
Press the **zero key**		**888888**
Keep pressing the **zero** key and press the **TARE** key three times, SPEC number and related data, SP data are shown alternately	**Short**	**141** **SPC00 / 0000**
To call SPEC no. 20 – 30, keep pressing the **zero** key and press the **left arrow** key three times		
The **left arrow** key is used to shift the flashing digit to the left.		**00“0“0**
Each time the **up arrow** key is actuated, the number of the corresponding digit changes between 0 and 1.		**00“1“0**
The **zero** key stores the change that was made and switches to the next SPEC no.		**SPC01 / 0000**
To store the SPEC setting and return to weighing mode press the **TARE** key.		**0,000**

The chapters below show the menu structure that allows carrying out individual settings.

The display in this menu structure indicates the following actions:

Bit 3	Bit 2	Bit 1	Bit 0
1	**1**	**0**	**0**

Flashing digit indicates current position.

Zero key: Counts up to SPEC number and stores content of last SPEC number
TARE key: Cancels change of current SPEC data and exits menu
Left arrow key: Shifts flashing digit to the left.
Up arrow key: Alternates value at current digit between 0 and 1

English

9.2 Menu structure

SPEC no.	Bit 3	Bit 2	Bit 1	Bit 0
0	Automatic cut-off (when balance is in resting position) 0000 – Automatic cut-off turned off if balance is not in use 0001 – after 3 minutes 0010 – after 10 minutes 0011 – after 30 minutes 0100 – after 60 minutes 0101 – after 180 minutes 0110 ~ 1111 – not used			
1	Buzzer 0 - ON 1 - OFF	Error alarm 0 - ON 1 - OFF	Tolerance balance Buzzer 0 - ON 1 - OFF	
2	Backlighting (LCD) 00 – always ON 01- always OFF 10 - Automatic 11- not used			Tolerance balance Unit 0 - % weight 1 - weight
3	RTS/CTS handshake of RS-232C 0 - ON 1 - OFF	Baud Rate of RS-232C 000 – 1200 bps 001 – 2400 bps 010 – 4800 bps 011 – 9600 bps	100 – 19200 bps 101 – not used 110 – not used 111 – not used	
4	Stop Bit of RS-232C 0 – 1 Bit 1 – 2 Bit	Data length of RS-232C 0 – 7 Bit 1 – 8 Bit	Parity of RS-232C 00- None 01- Odd 10- Even 11- not used	
5	RS-232 PC protocol 0000 – No data transfer 0001 – Standard version (continuous) type A (chapter 10.4.1) 0010 – not documented 0011 – Remote control commands (chapter 10.4.3) 0100 – for this application no function 0101 – for this application no function 1110 – printer output (chapter 10.4.2) 0110- 1111 not used			

6	Interval of the time-out error of RS-232C 00 – 1 second 01 – 3 seconds 10 – 5 seconds 11 – 10 seconds		Transfer condition if display is 0 – stable 1 – stable or unstable	Additional parity display in version RS232 0 – no 1 - yes
7	Data output of tare weight via RS-232 0 – no 1 - yes	Data output of balances no. via RS-232 0 – no 1 - yes	Header in version RS232 0 – no 1 – yes (preceding 0)	Data output within weighing range 0 - always 1 – over 20e
8			Data output of status via RS-232 0 – no 1 – yes	
9	PC sends „w“ as a remote control command 0 -Enabled 1- Disabled	PC sends „t“ as a remote control 0 -Enabled 1- Disabled		
10 ~ 19	not used			

SPEC no.	Bit 3	Bit 2	Bit 1	Bit 0
28	Up key function 0 – Weigh unit convert 1 – Data send			

10 RS 232C interface

10.1 Specification

Baud rate : 1200 / 2400 / 4800 / 9600 / 19200 bps.
Start Bit : 1 Bit
Stop Bit : 1 / 2 Bit
Data Bit : 7 / 8 Bits
Parity Even / Odd / None

10.2 Pin allocation 9-channel interior

Pin 2: RXD
Pin 7: RTS
Pin 3: TXD
Pin 8: CTS
Pin 5: GND

If handshake is not required, connection of RTS and CTS may be void.

10.3 Data format

Final character	CR	End-of-line	0x0d
	LF	End-of-record	0x0a
Data	„0“ – „9“	Numeric data	0x30- 39
	„-“ (Minus)	Minus sign	0x2d
	„.“ (Decimal)	Decimal	0x2e
	„ “ (Space)	Data error or space	0x20
	OF	Overload	0x4f 0x46
	UF	Underload	0x55 0x46
ID	„0“	Net weight	0x30
	„4“	Tare weight	0x34

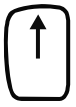
10.4 Communication options

The extent and type of data output is to be set in the menus SPEC 5 to 8.

10.4.1 Standard version (continuous) type A

Data is transferred continuously to the PC.
Data output of stable / unstable weighing values according to setting.
Additional information, such as parity bit, tare load, balance no. or ID may be activated in the menu above.
(For setting see chapter 9.2).

10.4.2 Printer output

With pressing the key-  data will be printed on the printer, set in SPEC 6 to 8.
Up-key will be released in SPEC 28 .

10.4.3 Remote control commands

by means of the remote control, commands are transmitted from a PC to the scale. (through the serial interface) these commands must be released in SPEC 9.
Through the "w" command, current data (attitudes in SPEC 6 – 8) in the scale is sent over the serial interface to the PC. With the "t" command, the scales carry out the Tara function, the display value is set to 0.0.

11 Error messages

Error message	Possible cause	Remedy
8 8 8 8 8 8	Zero point outside range	Readjust balance
O F	If the material to be weighed exceeds the maximum display value or when the weighing plate already bears a load at the start-up of the balance.	Remove material from weighing pan.
U F	The weighing value is in negative range.	 -key or turn off again.

12 Service, maintenance, disposal

12.1 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.

12.2 Service, maintenance

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

12.3 Disposal

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

13 Instant help

In case of an error in the program process, briefly turn off the balance and disconnect from power supply. The weighing process must then be restarted from the beginning.

Help:

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

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

English

14 General (BVBP)

- These installation instructions cover all information required for the installation and start-up of the following weighbridges:

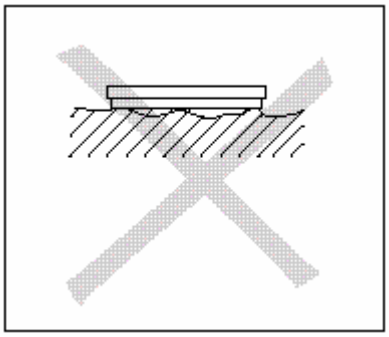
BVBP 600 K 200 SM
BVBP 600 K 200 M
BVBP 1.5T 0.5 SM
BVBP 1.5T 0.5 M
BVBP 3T 1 M

- Information on maintenance, troubleshooting and repair is contained in Chap. 14.5.

14.1 Installation

14.1.1 Choosing a location for the scale

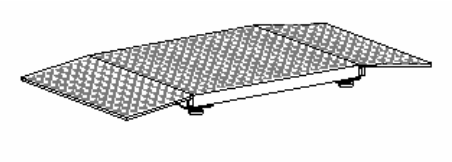
- Do not use in areas with explosive materials or in areas with some risk of explosion due to gases, vapours or dust!
- Use the weighbridge only in a dry environment.



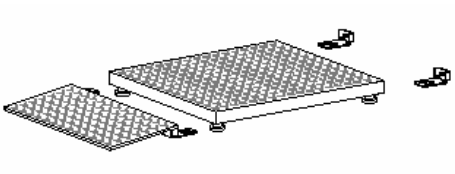
- The foundation on which the scale is placed must be capable of safely supporting the maximum weight to which the weighbridge is exposed at the support points. It must also be stable enough to prevent disturbances during the weighing operations.
- No vibrations should be caused by adjacent equipment.

14.2 Setup

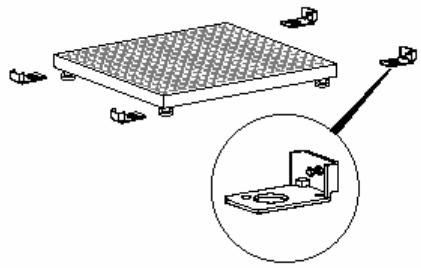
14.2.1 Setup of the weighing bridge



or



or



1. The following accessories are required to mount the weighbridges (depending on model):
   two (2) loading ramps
   or
   (1) loading ramp and one (1) locator plate set with stop
   or
   two (2) locator plate sets with stops.

2. The two loading ramps and/or locator plates must be placed in front and in back of the weighbridge on the floor.

3. Lift the weighbridge and position it with the adjustable feet inserted into the notches in the ramps or locator plates provided for this purpose.

4. Pay special attention to the flatness and horizontal position of the locator plates and ramps at the site, particularly in the area of the adjustable feet. Small differences in height may be offset with the adjustable feet.

5. Adjust the orientation of the ramps and the locator plates.

6. Mark the layout of the ramps or locator plates; the ramps or locator plates must be secured to the floor with the anchor plugs in the holes. (locator plates: 2 anchor plugs, ramp: 2 anchor plugs).

The weighing platform must be aligned with the use of a water balance.
All foot screws must equally touch the floor.

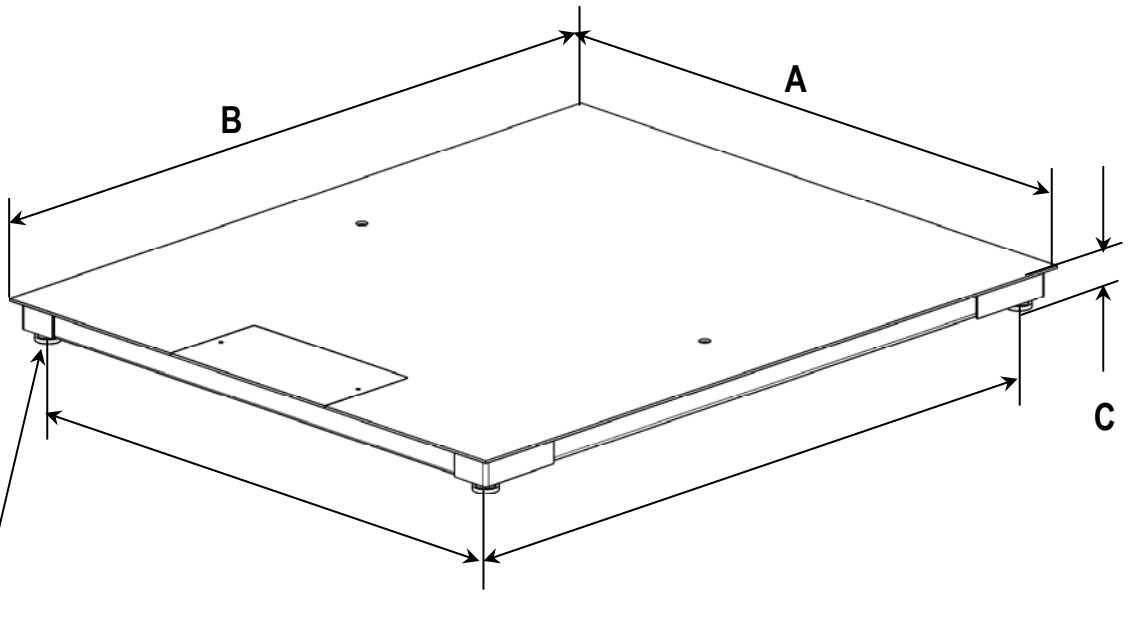
English

14.2.2 Terminal connection

- Run the connection cable to the terminal.
- Connect the connection of the terminal and lock.

Note!
When running the connection cable to the terminal, make sure that is well protected from any possible damage.

14.3 Dimensions



. adjustable feet

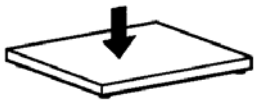
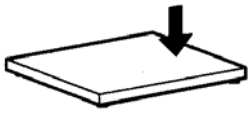
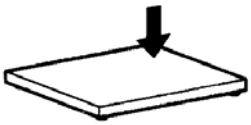
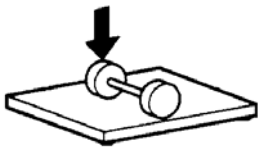
Dimensions	SM-Size	M-Size
A	1000	1250
B	1000	1500
C	125	125

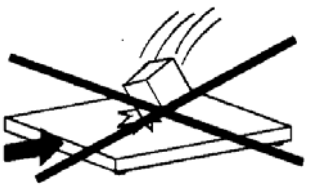
14.4 Start-up

- Before starting the scale, the weighbridge must be securely anchored to the floor using the anchor feet. This must be done to ensure the reproducibility of the measurements.

14.5 Operating limits

- The weighbridges have an extremely sturdy design. The load limits must not exceed the weights indicated in the following table!
- Depending on the way the load is absorbed, the static load capacity, i.e., the maximum allowable load is:

	Weighing Range	**600kg**	**1500kg**	**3000kg**
	• Load in the middle	3000kg	4500kg	4500kg
	• Load on one side	2000kg	3000kg	3000kg
	• Load on one corner	1000kg	1500kg	1500kg
	• Load on wheel	400kg	800kg	800kg



- Avoid shocks, thrusts or impacts from the side!

English

Operation with loading ramps

- The loading platform of the weighbridge is the actual weighing component whereas the access ramps are passive parts, hence all wheels of the transport vehicles must remain on the loading platform during the weighing operation.
- The groove between the loading platform and the access ramps must be free. The groove must be checked and emptied regularly, particularly when weighing pellets or small parts.

14.6 Cleaning the weighbridge

The maintenance of the weighbridge consists simply of regular cleaning.

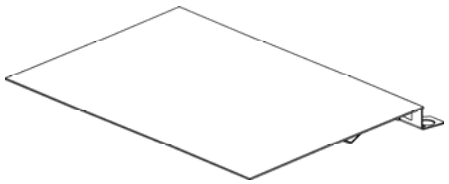
- External cleaning of the weighbridge, painted in a dry environment

  Wipe with a damp cloth, use household cleaning products.

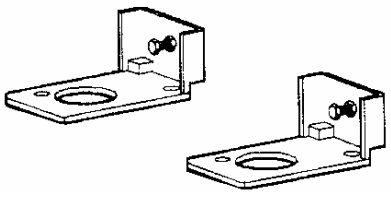
Cleaning product

- Use the cleaning product and disinfectant as indicated by the manufacturer thereof.

14.7 Accessories



Ramp dimensions
1250 x 840 x 125 (for weighbridge **M**)
1000 x 840 x 125 (for weighbridge **SM**)



Set of locator plates
with stop

Tripod
Height adjustable max. 1550 mm

14.8 Service documentation (summary)

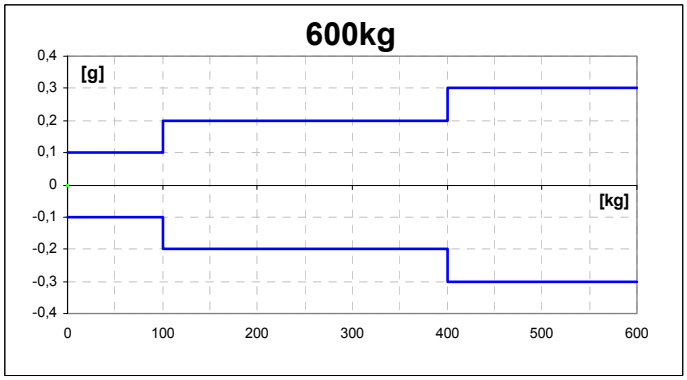
Notes:
This chapter is reserved for scale specialists only!
The weighbridges have been designed with DMS sensor technology and are equipped with a DMS weighing cell at each corner.
An analogue-digital conversion is performed at the operator terminal. All scale and country specific data are also kept here.

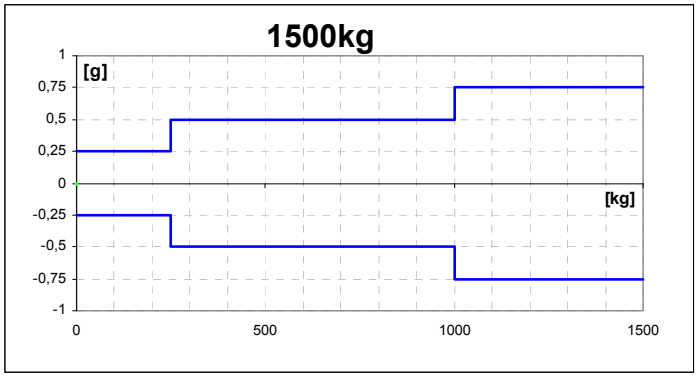
14.8.1 Overview, adjustment regulations, tolerances

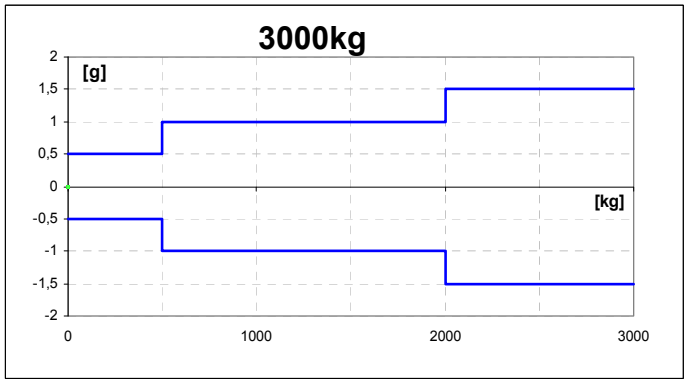
Adjustment and verification regulations

Capacity	600 kg	1500 kg	3000 kg
Read-out	200 g	500 g	1000 g
Min	4 kg	10 kg	20 kg
Max	600 kg	1500 kg	3000 kg
1/3 load per corner	200 kg	500 kg	1000 kg
Tolerance	200 g	500 g	1000 g

Adjustment data and tolerances as per OIML

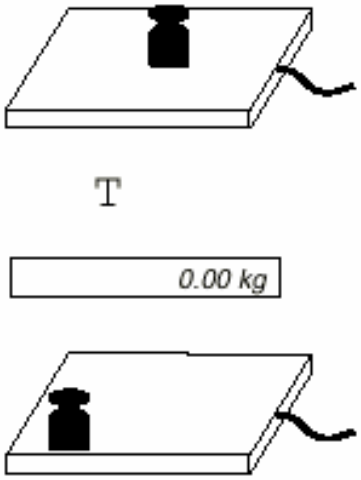






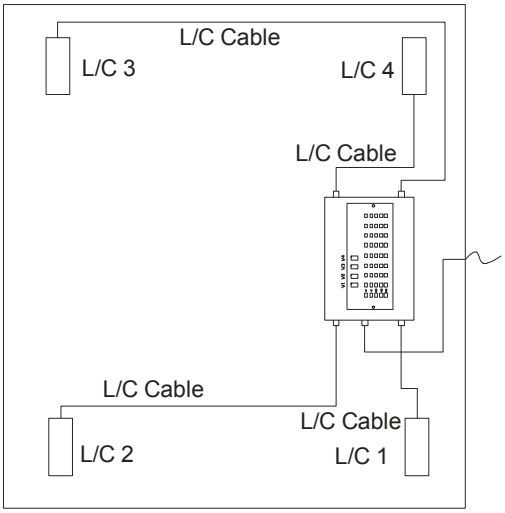
English

14.8.2 Corner load



14.8.2.1 Verification and adjustment of corner load

- Position and tare the adjustment weights in the middle of the load plate as shown in Section 14.8.1.
- The scale will display -0-.
- Place the adjustment weights sequentially on the four corners.
- Any deviations are displayed, preceded by the sign. Note the values. If any deviations are out of tolerance as indicated in Section 14.8.1, the scale must be adjusted.



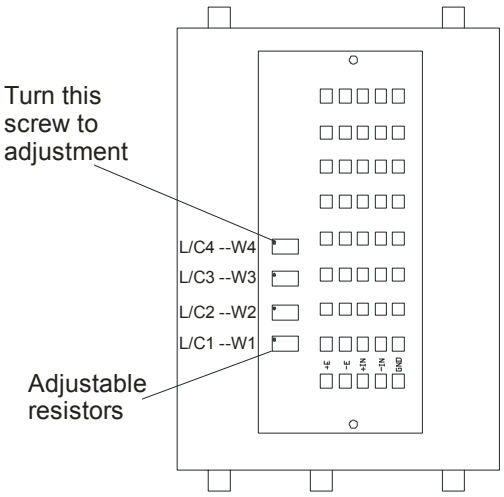
14.8.2.2 Adjustment of the corner load

Preparation

- For better control of the changes occurring during adjustment, take the highest possible reading in service mode.
- Access the junction box and actuate the adjustment potentiometer.

Adjustment gauge

- Set the corner (weighing cell) with the highest negative deviation (-) to zero. Do not vary this corner even after repeated adjustment processes.



Analogprint adjustment

Weighing cell 1 can be adjusted by using the first pair of potentiometers, and so on for 2, 3 and 4.

- For + deviations, turn to the right,
  For - deviations, turn to the left.