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Service manual

KERN EWJ

Version 1.3

03/2019

GB

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Version 1.3 03/2019

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1 Basic Information

The device must be repaired only by trained specialist staff or personnel with professional formation (such as a repair-specialist accredited by law concerning verification). The service manual is obligatory for repair work. After repair, original conditions of the device have to be restored. Only original spare parts should be used.

Instructions about conformity-evaluated scales:

Repair must be carried only at 100% compliance with the type approval. A violation of this specification will result in a loss of the type approval! After successful repair the balance will have to be reverified before it can be used again in a statutorily regulated field.

Detailed instructions about conformity-evaluated scales:

Repair must be carried only at 100% compliance with the type approval. A violation of this specification will result in a loss of the type approval!

After successful repair the balance will have to be reverified before it can be used again in a statutorily regulated field.

2 Introduction

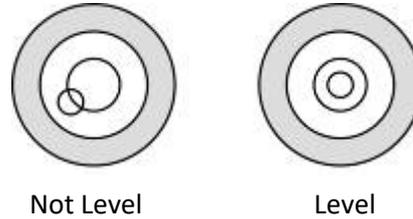
This service manual covers the EWJ series and is edited for the authorized servicing personnel. Note all rights are reserved. Copying any part of this manual is prohibited without our permission.

3 Preperation

Level Adjusting

Place the scale on a table.

Check the water mark. If, bubble is not centered adjust the leveling feet until reach center. Check the level when you change the location.



Charging Battery

- To charge the battery insert the adaptor pin to jack, jack is locating rear side of the scale. Adaptor simply plug into the mains power. The scale no needs to be turned on.
- The battery should be charged for 12 hours for full capacity.
- Left side of the display there is an LED to indicate the status of battery charging. When the scale is plugged into the mains power the internal battery will be recharged. If the LED is green, the battery has a full charge. If it is red, the battery is nearly discharged and if yellow, the battery is being charged.
- Do not use any other type of power adaptor than the one supplied with the scale.
- Verify that the AC power socket outlet is properly protected.

Note: Please charge the battery before using the scale for the first time

4 Verification

General introduction:

According to EU directive 90/384/EEC or 2009/23EG 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.

Verification notes:

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 be verified and re-verified at 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.

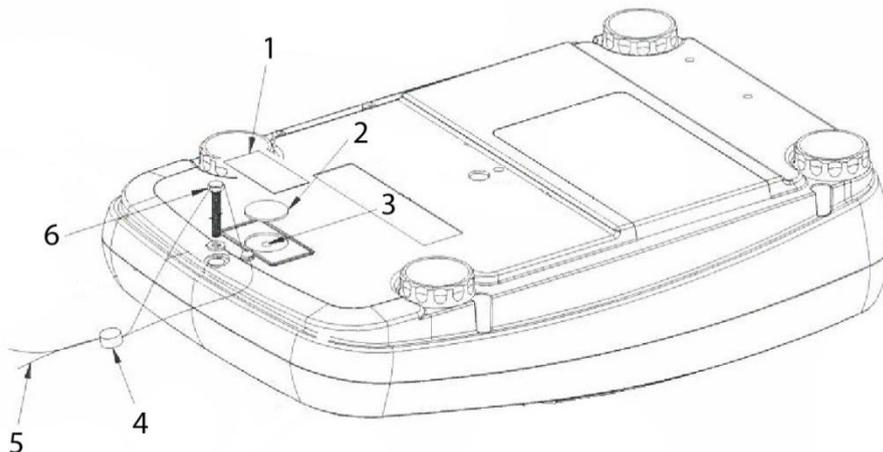
The legal regulation of the country where the balance is used must be observed!



Verification of the balance is invalid without the seal.

The seal marks attached on balances with type approval point out that the balance may only be opened and serviced by trained and authorised specialist staff. If the seal mark is destroyed, verification loses its validity. Please observe all national laws and legal regulations. In Germany a re-verification will be necessary.

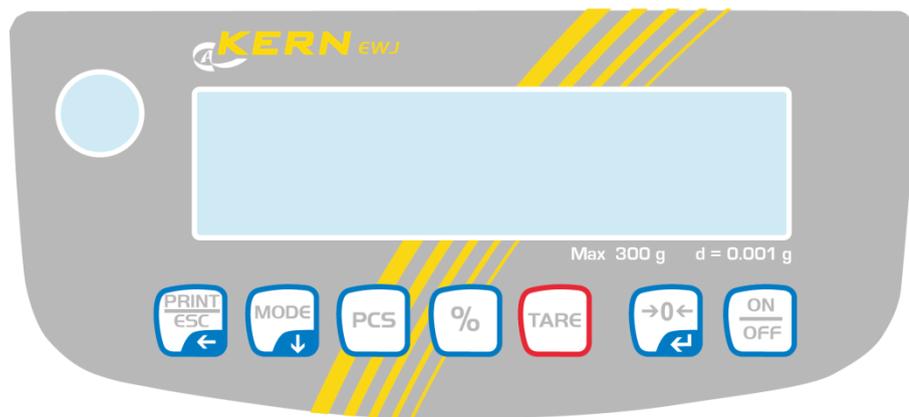
Position of seals and adjusting switch:



1. Self-destroying seal mark
2. Plastic disk to cover the adjustment switch
3. Adjustment switch
4. Lead
5. Wire
6. Housingscrew

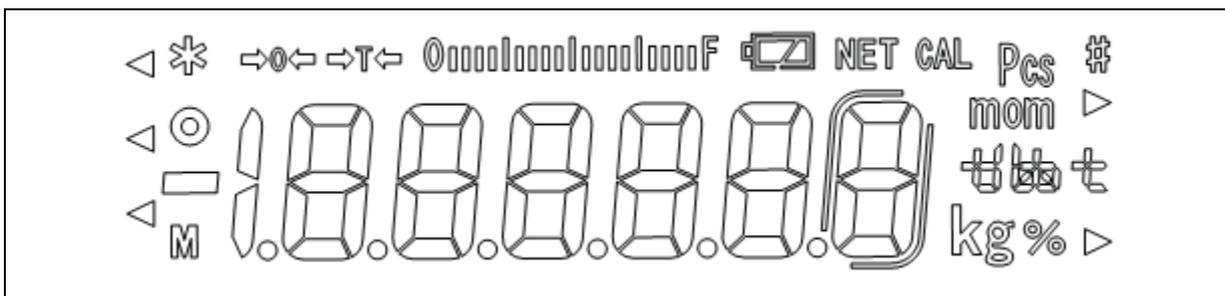
5 DESCRIPTION

5.1 Key Board



Key	Function	Function in Menu
	Calculate weighing data via interface	Exit menu / back to weighing mode.
	Switch-over weighing unit	Scroll forward in menu
	Parts counting Delete total added memory	
	Percent determination Start internal adjustment (longer pressing of the button)	
	Taring	
	Zeroing	Take over selected setting
	Turn on/off	

5.2 Display



	Zero indicator
	The displayed weighing value is a net weighing value
	Capacity display The bar graph display moves from the left to the right and proceeds equally to the weight loaded onto the weighing balance. Its full width is reached at maximum load. This is an analogue display of the current allocation of the weighing area.
o	Stability display
Pcs	Indicator for counting
%	Indicator for percent determination
	Currently selected weight unit
fully loaded	Loading status of the rechargeable battery (prerequisite menu setting „P9batt on“, see chap. 8.2). The number of segments informs about the loading status of the rechargeable battery.
1/2 loaded	
empty	

6 Error Description

error LO minus weight over than -5% capacity

7 Menu

7.1 Navigation in the menu

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

Menu block	Menu item	Available settings / explanation
F1 Unt Weighing Units		Not documented
F2 bl Display background illumination	EL AU*	Automatic background illumination on when weighing plate is loaded or key pressed.
	EL on	Background lighting of display is switched on permanently
	EO oFF	Display background illumination off
F3 Com Interface parameter	S 232	Use  to select interface: RS232 or USB
	S USb	<ul style="list-style-type: none"> • Output of a stable weighing value after pressing of  (menu setting „F4 ACC oFF“) • Manual totalizing (menu setting „F4 ACC on“), see chap. 7.9. Press  and the weighing value will be added to the summation memory and issued.
	P Cont	Continuous data output see chap. 9.3

	P AUto	For automatic add-up see chap. 7.10. This function is used to issue and add individual weighing values automatically to the summation memory on unloading of weighing scale.												
	wirel	Not documented												
	P ASK	Remote control instructions												
		<table border="1"> <thead> <tr> <th>Command</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>S</td> <td>Stable weighing value for the weight is sent via the interface</td> </tr> <tr> <td>W</td> <td>Weighing value for the weight (stable or unstable) is sent via the interface</td> </tr> <tr> <td>T</td> <td>No data are sent, the balance carries out the tare function.</td> </tr> <tr> <td>Z</td> <td>No data are sent, the zero-display appears.</td> </tr> <tr> <td>P</td> <td>Quantity will be sent via the interface</td> </tr> </tbody> </table>	Command	Function	S	Stable weighing value for the weight is sent via the interface	W	Weighing value for the weight (stable or unstable) is sent via the interface	T	No data are sent, the balance carries out the tare function.	Z	No data are sent, the zero-display appears.	P	Quantity will be sent via the interface
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P	Quantity will be sent via the interface													
	Acknowledge selection by  .													
	b600 ↓ b 9600*	Baud rate 600, 1200, 2400, 4800, 9600 selectable.												
	Acknowledge selection by  .													

		tP	Standard printer setting		
		LP 50	Not documented		
		Acknowledge selection by  .			
		Eng*	Standard setting English. only displayed for setting „LP 50“		
		chi	Not documented		
F4 SPD Display speed	SPd L	Verifiable models: “Low”		Non-verifiable models: SPd 1	
	SPd n	“Normal”		SPd 2	
	SPd H	“High”		SPd 3	
				SPd 4	
F5 HoUr	oFF	Automatic adjustment switched off			
	1 HoUr ↓ 8 HoUr	Time interval after which the automatic adjustment starts, selectable 1, 2, 3,4, 5, 6, 7, 8 hours.			
P6 bAtt	bAttoF	Mask loading status display „Recharg.battery“			
	bAtton	Display loading status display „Recharg.battery“			
SALE m	SALE n	Sale mode no: d= 0.1g			
		EWJ 300-3: d= 0.001 g	EWJ 600-2M: d= 0.01 g	EWJ 6000-1M: d= 0.1 g	
	SALE y	Sale mode yes: d= 0.01 g			
		EWJ 300-3: d= 0.01 g	EWJ 600-2M: d= 0.1 g	EWJ 6000-1M: d= 1 g	
<p>i The SALE mode is locked for balances with type approval.</p> <p>To disable the access lock, destroy the seal and actuate the adjustment switch. Position of the adjustment switch see chap. 6.11 Attention: After destruction of the seal the balance must be re-verified by an authorised agency and a new verification wire/seal mark fitted before it can be reused for applications subject to verification.</p>					

8 Adjustment

8.1 Non verified models

- Turn on the scale.
- Press  key during self checking, display will be show f 1 unt
- Press  key until display will be show tech

Note: Before enter the tech menu, press calibration switch, which is locating below the scale

- Press  display show P in
- Press   and  keys, display will be show p 1 lin

8.1.1 Linear Calibration linear

Recommended calibration values. Use weights of OIML class F1.

Max load Scale	1 value	2 Value	3 value	4 value	5 value	6 value	7 value
300g	0	50 g	100 g	150 g	200 g	250 g	300 g
3000g	0	500 g	1000 g	1500 g	2000 g	2500 g	3000 g
600g	0	200 g	400 g	600 g			
6000g	0	2000 g	4000 g	6000 g			

- Press  key to enter calibration, display will be shown pi n
- Press   and  keys, display will be load 0
- ***Note: Ensure the pan is empty**
- After stable and zero indicator on, display will be show Load 1
- Place the first calibration mass weight on the pan.
- After stable and zero indicator on, display will be show Load 2
- Add again the second calibration mass weight on the pan.
- After stable and zero indicator on, display will be show Load 3
- Add again the third calibration mass weight on the pan.
- After stable and zero indicator on, display will be show Load 4
- Add again the fourth calibration mass weight on the pan, (***Note: Calibration mass weight should be full capacity of the scale**)
- After stable and zero indicator on, display will be show load 0 Remove the calibration mass weight from the pan
- ***Note: Ensure the pan is empty**

- After stable and zero indicator on, display will show Load 4
- Place the calibration mass weight on the pan, (***Note: Calibration mass weight should be full capacity of the scale**)
- After stable and zero indicator on, display will show Load 3
- Remove the fourth calibration mass weight from the pan
- After stable and zero indicator on, display will show Load 2
- Remove the third calibration mass weight from the pan
- After stable and zero indicator on, display will show Load 1
- Remove the second calibration mass weight from the pan
- After stable and zero indicator on, display will show load 0 Remove the first calibration mass weight from the pan (***Note: Ensure the pan is empty**)
- After stable and zero indicator on, display will start self checking.
- After self checking display will come to normal weighing mode
- ***Note:**
- **During the linear calibration steps LOAD 1 to LOAD 4, mass weights want to add on the pan. Don't remove all mass weights for the next step.**
- **During the linear calibration steps LOAD 4 to LOAD 1, mass weights want to reduce from the pan. Don't remove all mass weights for the next step.**

8.2 Verified models

- Turn on the scale.

- Press  key during self checking, display will be show f 1 unt

- Press  key until display will be show tech

Note: Before enter the tech menu, press calibration switch, which is locating below the scale

- Press  display show P in

- Press   and  keys, display will be show p 1 lin

8.2.1 Linear Calibration linear

Recommended calibration values. Use weights of OIML class F1.

Max load Scale	1 value	2 Value	3 value	4 value	5 value
300g	0	50 g	100 g	200 g	300 g
3000g	0	500 g	1000 g	2000 g	3000 g
600g	0	200 g	400 g	600 g	
6000g	0	2000 g	4000 g	6000 g	

- Press  key to enter calibration, display will be shown pi n
- Press   and  keys, display will be load 0
- ***Note: Ensure the pan is empty**
- After stable and zero indicator on, display will be show Load 1
- Place the first calibration mass weight on the pan.
- After stable and zero indicator on, display will be show Load 2
- Add again the second calibration mass weight on the pan.
- After stable and zero indicator on, display will be show Load 3
- Add again the third calibration mass weight on the pan.
- After stable and zero indicator on, display will be show Load 4
- Add again the fourth calibration mass weight on the pan, (***Note: Calibration mass weight should be full capacity of the scale**)
- After stable and zero indicator on, display will be show load 0 Remove the calibration mass weight from the pan
- ***Note: Ensure the pan is empty**

8.3 Adjust internal weight p2 CAL

- Press  key to enter calibration, display will be show unload
- Remove all the weight from the platform.
- When scale get stable, press  key to confirm.
- Display will be show load
- Place the calibration weight (1/3 of the capacity) on the platform
- After stable, scale will be calibrate automatically and will start self-test.

Note: In case display will show any error message or incorrect measurement, repeat the calibration again.

8.4 Manual calibration by built-in weight

In the weighing mode, press and hold  key 3 seconds. The display will be show XCALX, after 20 seconds, the display will be show PASS and come back to the weighing mode.

8.5 Check internal counts F3 CNT

Press  key to enter internal counts, the display will be show “XXXXX”. Press  key to escape from the menu.

9 RS232 OUTPUT

9.1 Specifications:

RS-232 output of weighing data
 ASCII code
 600~9600Baud
 8 data bits
 No Parity

9.2 Continuously output protocol



HEADER1: ST=STABLE, US=UNSTABLE

HEADER2: NT=NET, GS=GROSS

9.3 Print Format

Printer Mode	LP-50 (OS-2130D)	TP
Weighing	2013/07/05 12:00 S/NO: 1 WEIGHT: 200.000g	NO: 1 WEIGHT: 200.000g
Counting	2013/07/05 12:00 COUNT: 250 pcs UNIT WT: 0.99998 g WEIGHT: 249.998 g	COUNT: 250 pcs UNIT WT: 0.99998 g WEIGHT: 249.998 g
Percent	2013/07/05 12:00 PERCENT: 100.00%	PERCENT: 100.00%

10 Drawing

English

