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Servicemanual
Platform/floor scales

KERN Kio-T

Typ Kio-T
Version 1.1
11/2025

GB



GB

KERN Kio-T

Version 1.1 11/2025

Servicemanual

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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!

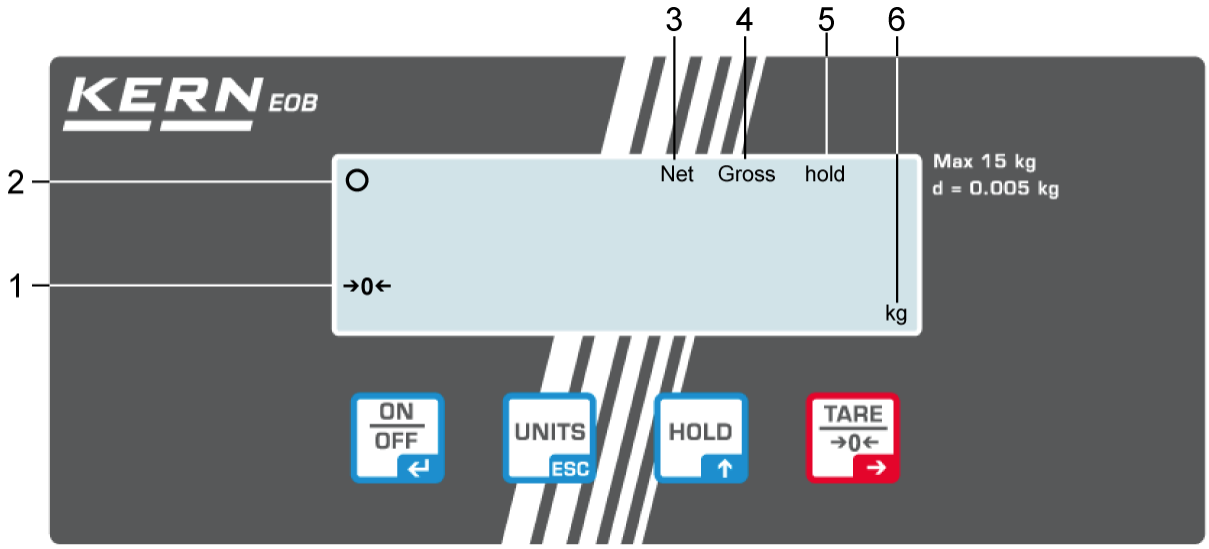
After successful repair the balance will have to be reverified before it can be used again in a statutorily regulated field.

2 Introdution

This service manual covers the Kio-T Terminal and is edited for the authorized servicing personnel.
Note all rights are reserved. Copying any part of this manual is prohibited without our permission.
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3 Overview of display

Example EOB:



Nr.	Description
1	Balance zero display: Should the balance not display exactly zero despite empty scale pan, press the **TARE** button. The balance will be set to zero after a short standby time.
2	Stability display: If the display shows the stability display **[0]** the balance is in a stable status. If the status is instable the [0] display disappears.
3	Stored tare value, see chap. 8.3 „Taring“
4	Gross weight display: If the gross weight [Gross] appears in the display, the gross weight of the object and weighing container are displayed.
5	Hold/animal weighing function active, see chap. 8.4
6	Weighing unit **[kg ⇆ lb]**

3.1 Keyboard overview

Button	Function
ON OFF	Turn on/off balance
HOLD	Hold/ animal weighing function
TARE →0←	Tare balance
UNITS ESC	Switch-over weighing unit Back to weighing mode, or to menu

4 Basic Information (General)

4.1 Proper use

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

4.2 Improper Use

Do not use balance for dynamic 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 pan. This may damage the measuring system.
Impacts and overloading exceeding the stated maximum load (max) of the balance, minus a possibly existing tare load, must be strictly avoided. Balance may be damage by this.
Never operate balance in explosive environment. The serial version is not explosion protected.
The structure of the balance may not be modified. This may lead to incorrect weighing results, safety-related faults and destruction of the balance.
The balance may only be used according to the described conditions. Other areas of use must be released by KERN in writing.

4.3 Warranty

Warranty claims shall be voided in case

- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened
- Mechanical damage 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.

1 Transport and storage

5.3 Testing upon acceptance

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

5.4 Packaging / return transport



- ⇨ Keep all parts of the original packaging for a possibly required return.
- ⇨ Only use original packaging for returning.
- ⇨ Prior to dispatch disconnect all cables and remove loose/mobile parts.
- ⇨ Reattach possibly supplied transport securing devices.
- ⇨ Secure all parts such as the glass wind screen, the weighing pan, power unit etc. against shifting and damage.

6 Unpacking, Setup and Commissioning

6.1 Installation Site, Location of Use

The balances are designed in a way that reliable weighing results are achieved in common conditions of use.
You will work accurately and fast, if you select the right location for your balance.

Therefore, observe the following for the installation site:

- Place the balance on a firm, level surface;
- Avoid extreme heat as well as temperature fluctuation caused by installing next to a radiator or in the direct sunlight;
- Protect the balance against direct draughts due to open windows and doors;
- Avoid jarring during weighing;
- Protect the balance against high humidity, vapours and dust;
- Do not expose the device to extreme dampness for longer periods of time. Non-permitted condensation (condensation of air humidity on the appliance) may occur if a cold appliance is taken to a considerably warmer environment. In this case, acclimatize the disconnected appliance for ca. 2 hours at room temperature.
- Avoid static charge of goods to be weighed or weighing container.

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.

6.2 Unpacking and placing

Open package, take out the appliance and accessories. Verify that there has been no damage and that all packing items are present.
The balance must be installed in a way that the weighing pan is exactly in horizontal position.
Mount the display unit in a way that facilitates operation and where it is easy to see.

6.2.1 **Scope of delivery / serial accessories**

- Platform and display unit, see chap. 2
- 4 x adjustable feet
- 4 x AA batteries
- Wall fixture (with fixing screws)
- Operating manual

6.3 **Battery operation**

On the rear side of the display unit remove the battery cover and connect 4 x 1.5V mignon cells. Reinsert the battery cover.
In order to save the battery, the balance switches automatically off after 3 minutes without weighing. Additional switch-off times can be set in the menu (function "A.OFF").

If the batteries are depleted, the battery symbol  is displayed.
Switch-off balance and replace batteries at once.
If the balance is not used for a longer time, take out the batteries and store them separately. Leaking battery liquid could damage the balance.

6.4 **Initial Commissioning**

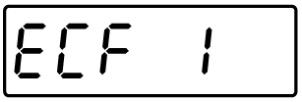
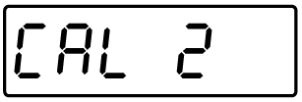
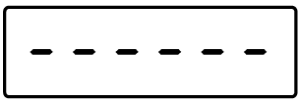
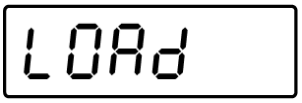
In order to obtain exact results with the electronic balances, your balance must have reached the operating temperature (see warming up time chap. During this warming up time the balance must be connected to the power supply (mains, accumulator or battery).

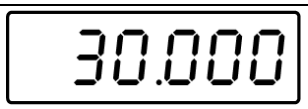
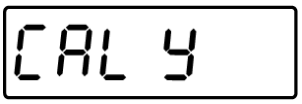
The accuracy of the balance depends on the local acceleration of gravity.
Strictly observe hints in chapter Adjustment.

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7 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out for the first commissioning, after each change of location as well as in case of fluctuating environment temperature. To receive accurate measuring values it is also recommended to adjust the balance periodically in weighing operation.
Observe stable environmental conditions. A warming up time (see chapter 1) is required for stabilization.

Press TARE →0← and HOLD at the same time in weighing mode. [ECF 1] is displayed.	
(The adjustment process can be exited at any time with UNITS ESC. The balance returns then to weighing mode.)	
Confirm display of [ECF 1] with ON OFF. [CAL Z] is displayed.	
Acknowledge with ON OFF. [--------] followed by [LOAd^{i}] will be displayed briefly. Then the display to input the recommended adjustment weight is displayed (see chap. 1 "Technical data") The left digit flashes. Enter the value of the adjustment weight as follows: Switch to the next digit to the right with TARE →0←. Increase number with HOLD. Confirm the value entered with ON OFF.	 ⇩  ⇩  (example)

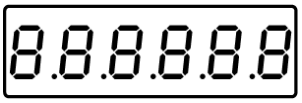
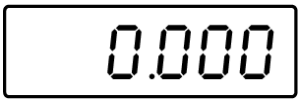
The specified adjustment weight is displayed flashing.	 (example)
Place the adjustment weight centrically on the weighing pan and confirm with ON/OFF. "CAL Y" will flash briefly and a signalling tone will sound. Adjustment will be performed. Then the balance returns automatically into the weighing mode.	

An error message will be displayed in the event of an adjustment error or incorrect adjustment weight. Remove the adjustment weight and repeat the adjustment process.

Keep the adjustment weight close to the balance. Daily control of the weighing exactness is recommended for quality-relevant applications.

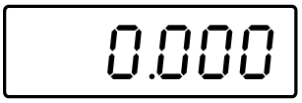
8 Operation

8.1 Start-up

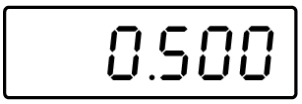
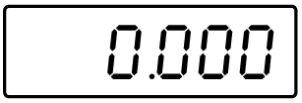
Start balance by pressing ON/OFF. The balance will carry out a self-test As soon as the weight display appears, the balance is ready for weighing.	 

Should the balance not display exactly zero despite empty weighing pan, press the TARE →0← button. The balance will be set to zero after a short standby time.

8.2 Switching Off

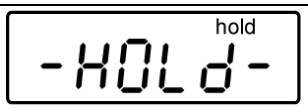
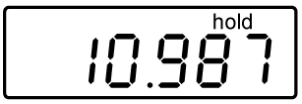
Switch off balance with ON/OFF, the display will go off.	 

8.3 **Taring**

Place an empty weighing container, the weight of the weighing container will be displayed.	
Press TARE →0←, the zero display appears. The indicator [NET] is displayed. The tare weight is saved until it is deleted.	
Weigh the material, the net weight will be indicated. 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 weighing container, the weight of the weighing container appears as negative display. The tare weight is saved until it is deleted.	
Delete tare value: Unload the balance and press TARE →0←, zero display will appear.	

8.4 **Hold function (animal weighing function)**

The balance has an integrated animal weighing function (mean value calculation). Using this function it is possible to weigh domestic or small animals exactly (min. load 1% of the max. one), although they do not stand quiet on the weighing pan.

Place weighing goods and press HOLD. The display will be blinking [-HOLD] and the indicator [hold] will be displayed. During this time the balance takes up several measured values and displays then the calculated mean value. This value will be displayed until you press HOLD again. The indicator [hold] turns off, the balance will return to the normal weighing mode. By pressing HOLD again, this function can be repeated any number of times.	  (example)

There is no average value calculation in the event of too much movement (heavy display oscillation).

9 Menu

9.1 Navigation in the menu

⇨ Press TARE →0← and ON OFF at the same time in weighing mode. [UF 1] is displayed.

⇨ Press HOLD as often as necessary until the required function is displayed.

⇨ Confirm selected function by ON OFF. The current setting will be displayed. Select the desired parameter with HOLD TARE →0←. Return to menu by UNITS ESC.

⇨ Press UNITS ESC to exit the menu. The balance returns automatically into weighing mode.

9.2 Menu overview

UF-1	-1630 (example)	**Internal value** not documented
UF-2	AoFF 10 *	**Auto-Off** Automatic shutdown function Can be set between 1-99 minutes
UF-3		**Display background illumination** Adjustable:
	Lt on	Background lighting on
	Lt oFF	Background lighting off
	Lt A *	Backlight automatically off

UF-4		**Hold function (animal weighing function)** Adjustable:
	Hd 20d	Average value is calculated for unstable weighing conditions from approx. 20 d
	Hd 5d	Average value is calculated for unstable weighing conditions from approx. 5 d
	Hd 10d *	Average value is calculated for unstable weighing conditions from approx. 10 d
UF-5	ZP 0 □ ZP 5	**Auto Zero** Adjustable:

ZP 0 *	Auto Zero: Off
ZP 1	• 0.5 d/s
ZP 2	• 1 d/s
ZP 3	• 2 d/s
ZP 4	• 3 d/s
ZP 5	• 5 d/s

UF-6	9.79450 *	**G-value (value of the local gravitational acceleration)** Adjustable

Factory settings are marked by *.

10 Service menu

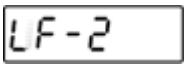
Turn on the scale [ON/OFF] and press and hold the [TARE →0←] during the countdown sequence, then release the [TARE →0←] and the scale will show

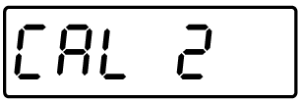
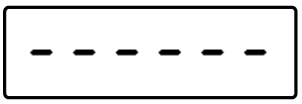
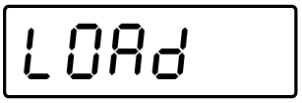
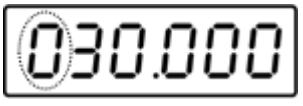
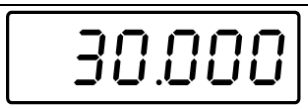
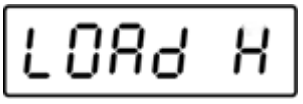
LF 1 Weight calibration
LF 2 Spec Calibration
LF 3 Gravtational (G value) pRe-Calibration

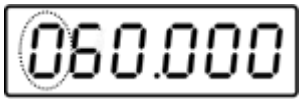
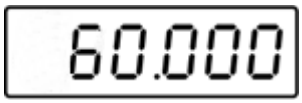
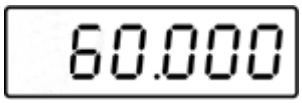
CAL switch hs to be on
Password is required to use when CAL switch is OFF

10.1 LF 1 Weight Calibration :

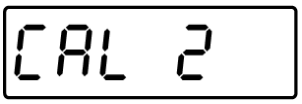
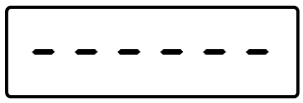
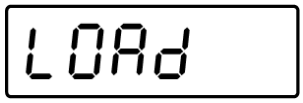
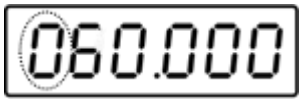
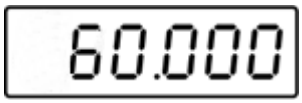
Calibration can be done with any weight, but the weight should not be less than 1/100 of the max. capacity and not to exceed the max. capacity
Enter the weight calibration will show the last time the weight calibration value, The following are two sections of the calibration and single calibration of the operation steps

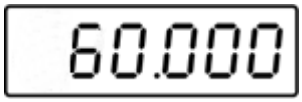
Two sections of the calibration: 

Press [ON/OFF] to enter [UNITS ESC]	
Confirm display of [ECF 1] with [ON/OFF]. [CAL Z] is displayed.	
Acknowledge with. [--------] followed by [LOAd[ii]] will be displayed briefly. Then the display to input the recommended adjustment weight is displayed The left digit flashes. Enter the value of the adjustment weight as follows: Switch to the next digit to the right with [TARE →0←]. Increase number with [HOLD]. Confirm the value entered with [ON/OFF].	 □  □  (example)
Place the required weight mass onto the scale as indicated on display and press the ↵ key to calibrate the scale (Press the ESC key to back to menu LF 1)	 (example)
Show stop for 2 seconds	

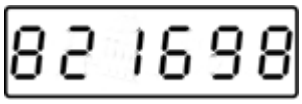
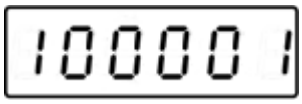
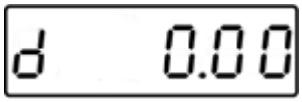
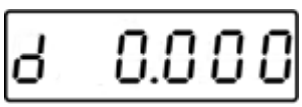
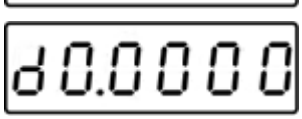
Use ▸ 、▲ and then ↵ key to enter the high weight to be calibrated (Press the ESC key to back to menu LF 1)	
Place the required weight mass onto the scale as indicated on display and press the ↵ key to calibrate the scale (Press the ESC key to back to menu LF 1)	
Calibration procedure completed and the scale will return back to weighing mode automatically	

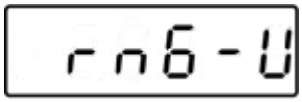
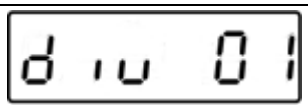
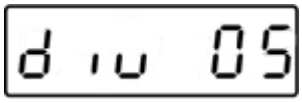
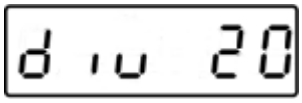
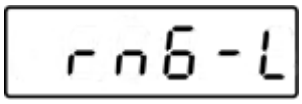
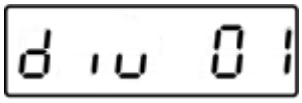
Single sections of the calibration

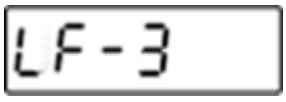
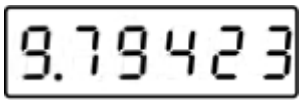
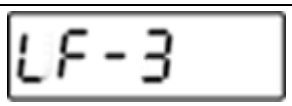
Press ON/OFF to enter UNITS/ESC	
Confirm display of [ECF 1] with ON/OFF. [CAL Z] is displayed.	
Acknowledge with. [--------] followed by [LOAd[iii]] will be displayed briefly. Then the display to input the recommended adjustment weight is displayed The left digit flashes. Enter the value of the adjustment weight as follows: Switch to the next digit to the right with TARE/→0←. Increase number with HOLD.	 □  □
Switch to the next digit to the right with TARE/→0←. Increase number with HOLD.	
Place the required weight mass onto the scale as indicated on display and press the ON/OFF key to calibrate the scale	

Calibration procedure completed and the scale will return back to weighing mode automatically	

10.2 **LF 2 Spec calibration**

Press ON/OFF to enter UNITS/ESC HOLD	
Confirm display of [ECF 1] with ON/OFF. [CAL Z] is displayed.	
Internal value	
Press ON/OFF to confirm	
A : Metric Units 0 : None 1 : kg B : American Units 0 : None 1 : lb C : Fixed to 0 D : PCS 0 : Off 1 : On E : Duo range 0 : Off 1 : Multi interval F : Calibration Unit 1 : Metric units as calibration unit, single calibration 2 : American units as calibration unit, single calibration 3 : Metric units as calibration unit, two sections calibration 4 : American units as calibration unit, two sections calibration ※ The scale will not allow to continue to the next setup step if an error has occurred during the programming	 A B C D E F
Press ON/OFF to confirm	
Switch to the next digit to the right with TARE/→0←. Increase number with HOLD. Press ON/OFF to confirm	  

	
Full range Flashing 2 seconds	
Put in the full range Switch to the next digit to the right with TARE →0← →. Increase number with HOLD ↑.	
Press ON/OFF ↵ to confirm	
Input high division Switch to the next digit to the right with TARE →0← →. Increase number with HOLD ↑.	     
Only if two point calibration is chosen before Input low range Flashing for 2 seconds	
Put in the full range Switch to the next digit to the right with TARE →0← →. Increase number with HOLD ↑.	
Input high division Switch to the next digit to the right with TARE →0← →.	

Increase number with HOLD.	
After entering LF 2, the scale will display the last saved setup. All steps have to be completed to save the changes, otherwise the scale will keep the last setup Proceed with Weight Calibration after LF2 Spec Calibration	
LF 3 Gravitational (G value) Pre-Calibration: Sender G value: Set it before Weight Calibration The G value will be denied when the value is greater than 9.83217 (Polar G value) or less than 9.78031 (Equator G value) Factory Default: 9.79423	
Switch to the next digit to the right with TARE →0←. Increase number with HOLD. Press ON OFF to confirm	
	

11 Servicing, maintenance, disposal

11.1 Cleaning

Before cleaning, 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. Take care that the device is not penetrated by fluids and polish it 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 Servicing, 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 Error messages, troubleshooting guide

Error message	Function
hhhhhh	Overload
LLLLLL	Minimum weight under min. value

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 pan 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. • The balance is on an uneven surface. • 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.