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Operating manual
Baby scale

KERN MBA

Typ TMBA-B

Version 1.0
2021-12
GB

GB

KERN MBA

Version 1.1 2021-12

Operating manual

Baby scale

English

Contents

English

1 Technical data

KERN	MBA 10K-3M
Item no./ Type	TMBA 15K-3M-B
Weighing range (max)	15 kg
Readability (d)	0.005 kg
Reproducibility	0.005 kg
Linearity	0.005 kg
Display	LCD with 25mm high digits
Recommended adjustment weight, not added (class)	15 kg (M1)
Stabilization time (typical)	3 sec.
Warm-up time	10 min
Operating temperature	10° C …. + 40° C
Storage and Transport Environment	-10 to +60°C, and 30% to 90% relative humidity Atmospheric pressure: 700-1060 hPa
Humidity of air	max. 80 % (not condensing)
Atmospheric pressure (kPa)	70kpa-106kpa
Input Voltage	100 V - 240 V, 50 / 60 Hz
Output Voltage power supply	DC 12V/500mA
Battery use	6 x 1,5 V AA
	battery working period: without WiFi installed: 50 hours
Auto Off	can be adjusted after "30, 60, 180" sec. or "Off" without load change
Dimensions fully mounted (W x D x H) mm	890 x 470 x 175
Baby weighing pan (B x D x H) mm	600 x 260
Weight kg (net)	4.6
Height measuring rod, optional	MBA-A01, Measuring range 40 – 80 cm
WIFI	WIFI interface as factory option

English

2 Declaration of conformity

The current EC/EU Conformity declaration can be found online in:

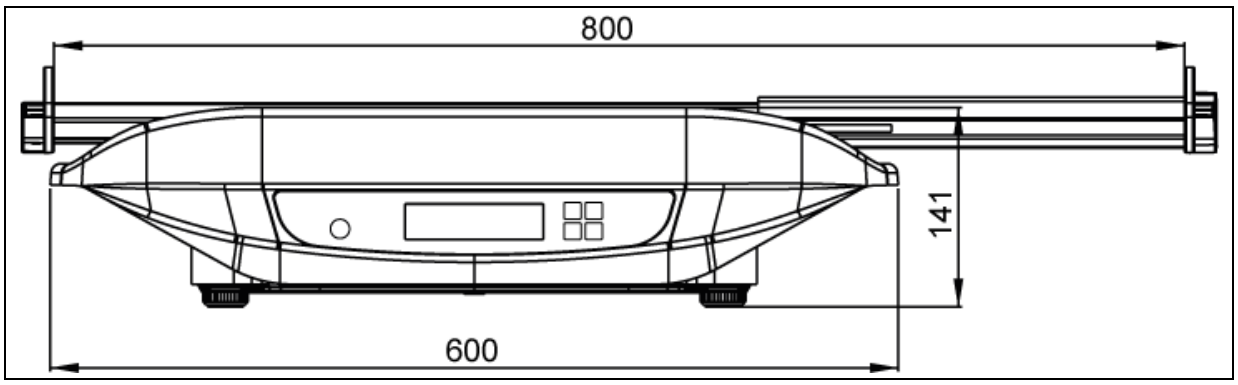
www.kern-sohn.com/ce

3 Appliance overview

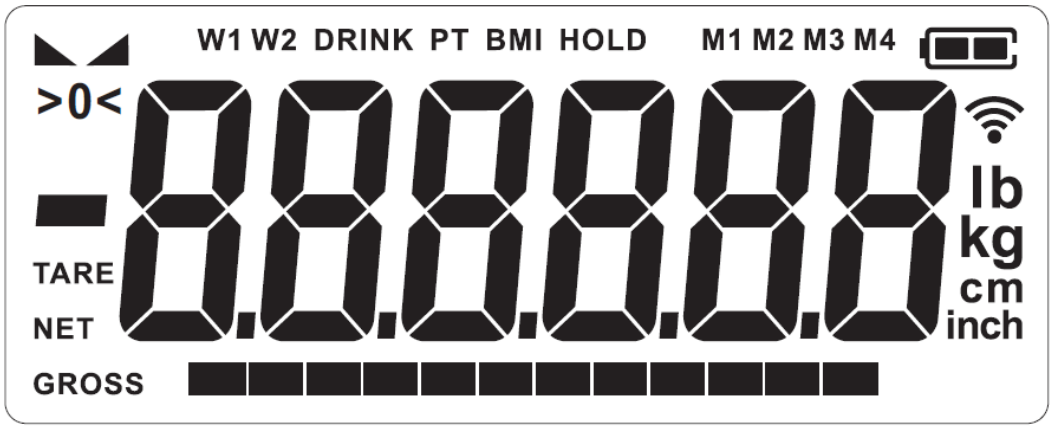
1. Height measuring rod (optional)
2. Baby weighing pan
3. Keyboard
4. LED
5. Bubble level
6. Mains connection
7. Rubber feet (height adjustable)
8. Battery compartment / adjustment switch inside
9. WIFI compartment

English

3.1 Dimensions



3.2 Overview of display



Display	Designation	Description
GROSS	Gross weight display	Illuminated when gross weight of the baby is displayed
NET	Net weight display	Illuminated when net weight of the baby is displayed Illuminated after weighing scale was tared
TARE	Taring display	Illuminated after weighing scale was tared
→0←	Zeroing display	Should the balance not display exactly zero despite empty scale pan, press the TARE →0← button. Your balance will be set to zero after a short standby time.

English

	Stability display	Scales are in a steady state
W1 – W2	Display weighing range	Illuminated, when the load is within the displayed range
HOLD	HOLD function	Is displayed with active Hold function
	Rechargeable battery symbol	Lights when the voltage drops below the prescribed minimum. Lights when the rechargeable battery capacity is almost exhausted. Illuminated when the rechargeable battery is fully charged.
	Wi-Fi symbol	Shows the status of Wi-Fi connection and Wi-Fi field strength (solely the models with a Wi-Fi unit).

English

3.3 Keyboard overview

Button	Designation	Function
	**ON/OFF**-button	Turn on/off **For numeric entry:** • Decimal point further to the right **In menu:** • Confirm selection
	**HOLD** button	Hold function **For numeric entry:** • Decimal point further to the left
	**TARE**-key/ Zeroing key	• Tare balance • Weighing scale will be reset to „0.0“ kg. **For numeric entry:** • Reduce numeric value **In menu:** • Call up menu • Select menu items
	**PRINT** button	Printout the weighing value **For numeric entry:** • Increase numerical value **In menu:** • Select menu items

English

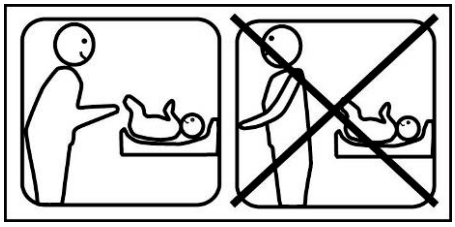
4 Basic Information (General)

4.1 Intended use

These balances serve as a means of determining the weight of babies in medical treatment rooms (hospitals or Doctor practices). The frequently used function of the baby scale is recognising, preventing and controlling illnesses.

The WIFI interface allows the measured results to be transmitted wirelessly to a PC.

⚠	Scales fitted with a serial interface may only be connected to appliances in compliance with Directive EN60601-1.

⚠	To prevent babies lying on the weighing pan from falling off the scale, they must be watched all the time. Please observe note on weighing pan! 

English

4.2 Improper Use / Contraindications

	Do not use these scales for dynamic weighing processes. 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 weighing plate, minus a possibly existing tare load, must be strictly avoided. This could cause damage to the balance. Never operate balance in explosive environment. The serial version is not explosion protected. It should be noted that a flammable mixture of anaesthetics and oxygen or laughing gas may occur. 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. 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. The scale is for weighing baby only. Any person with weight over 15 kg, do not step on the scale.
	**Improper use of optional height meter MBA-A01:** The structure of the height measuring rod may not be modified. This may result in incorrect measuring results, safety-related defects as well as destruction. The height measuring rod may only be used according to the described conditions. Other areas of use must be released by KERN in writing. More details in the instruction manuals of the height meter.

4.3 Warranty

Warranty claims shall be voided in case of

- 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
- Dropping the balance

4.4 Monitoring of Test Resources

In the framework of quality assurance the measuring-related weighing 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.

For balances with height measuring rods, we recommend a metrological examination of the accuracy of the height measuring rod, however, this is not mandatory as the determination of human body height involves rather large, intrinsic inaccuracies.

4.5 Reliability check

Before saving and sending the values, please ensure that the obtained measurements are reliable and ascribed to the relevant patient. This applies to values sent via the interface as well.

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 Preparing for use

- Check the balance for damage before any use
- Maintenance and re-verification
  The baby scale must be serviced and re-verified at regular intervals. (see chapter 12.4)
- Do not use the device on slippery surfaces or in rooms susceptible to vibrations
- The balance must be levelled during installation
- If possible, the product must be transported in its original packaging when transporting. If this is not possible, ensure that the product is protected from damage.

English

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 / 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 weighing pan, power unit etc. against shifting and damage.

7 Unpacking, Setup and Commissioning

7.1 Installation Site, Location of Use

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

On the installation site observe the following:

- Place scales on a stable, even 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 the balance and of the person to be weighed.
- Avoid contact with water.

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. In that case, the location must be changed.

7.2 Unpacking

Take the balance out of their packaging and place it at the intended position. When using the power pack, ensure that the power cable does not produce a risk of stumbling.

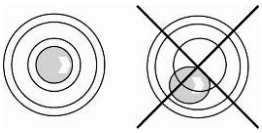
7.3 Scope of delivery

- Balance
- Batteries 6x1.5 V AA
- Operating manual

7.4 Installation

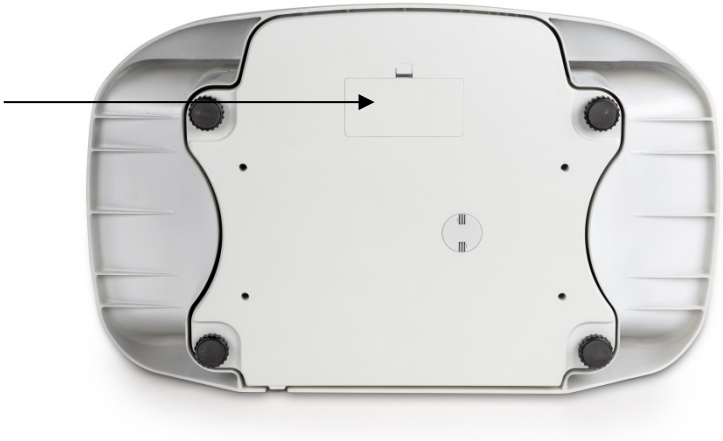
Carefully remove the balance from the packaging, remove plastic cover and setup balance at the intended workstation.

Levelling



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

7.5 Battery operation



The balance offers also the possibility to be operated with 6x AA-batteries.
Open the battery cover (see fig.) at the lower side of the display unit and insert the batteries according to the example shown below. Lock again the battery compartment cover. If the batteries are empty, in the balance display appears the symbol  . Change batteries. To save the battery, the balance switches automatically off (see chap.11.6 Auto off).

English

If the batteries are run down,to turn off, press the 

button and immediately change the batteries.
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.

 Capacity of batteries exhausted.

 Batteries will soon be flat.

 Batteries completely loaded

	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.

English

Insert batteries:

Remove the battery compartment lid on the lower side of the balance	
Connect the battery block with batteries to the contact of the housing and insert into the battery compartment. Fix it using the battery compartment lid.	 

English

7.6 Mains connection (option)

Power is supplied by the external power unit which also serves to isolate the mains supply from the scale. The stated voltage value must be the same as the local voltage.
Only approved genuine KERN power supply units may be used in compliance with Directive EN 60601-1.

	Using the optional Wi-Fi interface increases power consumption

7.7 Optional equipment mains adapters

Available mains adapters (optional)

- YKA-43
- YKA-44

7.8 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) and be switched on.

The accuracy of the balance depends on the local acceleration of gravity.
The value of gravity acceleration is shown on the type plate.

8 Operation

8.1 Weighing

Start balance by pressing ON/OFF.
The balance carries out a self-test.
The scales are ready for operation as soon as the weight display for “0.000 kg” has appeared.

- However, you can reset the weighing scale to zero by pressing the TARE →0← key.

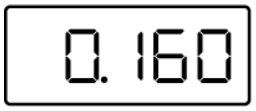
Put baby in the centre of the weighing pan.
Wait for the stability display ◣◢, then read the weighing result.

- If the baby is heavier than the max. weighing range, the display shows "oL" (=overload) and a beep sounds.

English

8.2 Taring

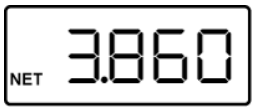
The tare weight of any preloads can be deducted by pressing a button so that the actual weight of the baby is displayed in subsequent weighings.



(example)

Put object (such as towel or padding) on the weighing pan.
Wait for stability display ◣◢ .

Press TARE →0←, the zero display appears.



(example)

Put baby on the weighing pan.
Wait until the stability display ◣◢ appears, then read the weighing result. “NET” is shown at the bottom on the left.

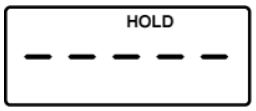
- When the balance is unloaded the saved taring value is displayed with negative sign.
- To delete the stored tare value, unload the balance and press TARE →0←.

English

8.3 Hold function (Standstill function)

The balance has an integrated standstill function (mean value calculation). This allows one to weigh the baby exactly, even if it is not restful in the weighing pan.

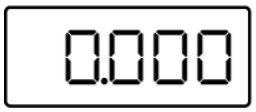
Start balance by pressing ON/OFF.
Await zero display



Place the baby, press HOLD, "**---------"** will shortly be displayed and the HOLD symbol appears flashing. During this time the weight is calculated.

(example)

After that the weight of the baby is displayed and "frozen". The HOLD symbol is not more flashing.

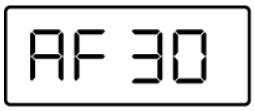
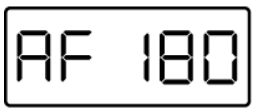


After unloading the balance, the weighing value is kept for 10 sec. in the display, the HOLD symbol flashes again during this time. Then the balance returns automatically into the weighing mode. The "HOLD" symbol disappears.

English

8.4 Auto off (Automatic switch-off function)

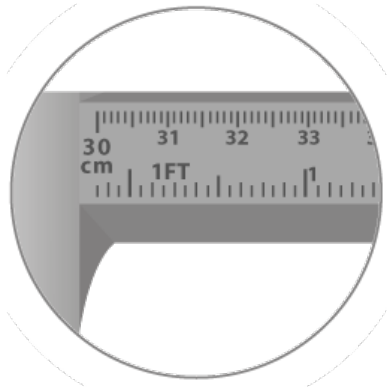
The balance offers the possibility of an automatic switch-off. It can be adjusted: Selectable between 30, 60, 180 sec. and off.

	Switch-on the balance, in weighing mode press TARE →0← for approx. 3 sec.; **AF** will be displayed.
	Press ON OFF →, the switch-off time set as last will be displayed, e.g. "30"
	Press PRINT ↑ or TARE →0← ↓ to set the desired switch-off time, e.g. "180" sec.
	Acknowledge by ON OFF →. The balance changes into the weighing mode, the set switch-off time now is saved.

English

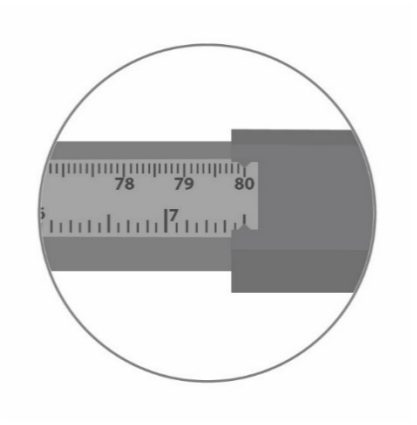
8.5 Using the optional equipment height measuring rod MBA-A01

The scale has the ability to determine not only the weight but also the body height using the optional height measuring rod.



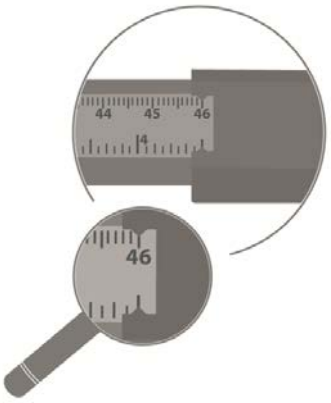
Fixed stop

min. 30 cm



Movable stop

max. 80 cm



For this purpose proceed as follows:

- ⇨ Position the baby in a way that the head touches gently the fixed stop.
- ⇨ Push the movable stopper carefully till to the heel stopper.
- ⇨ Read the body height.

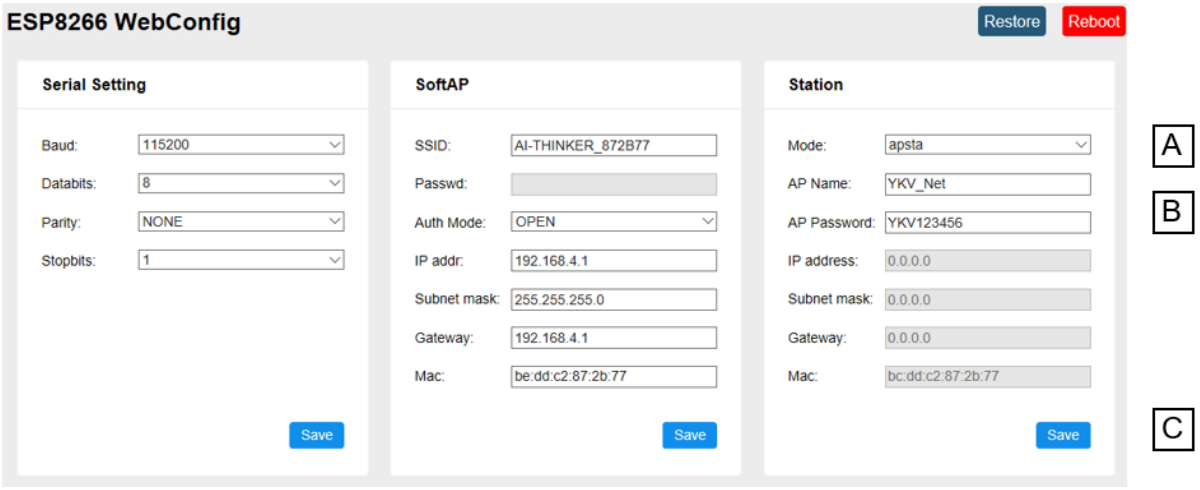
⚠	For the correct height measurement, the accuracy is down to 5 mm.

🕮	For further information (for example, installation), refer to the instruction manual that comes with the height measurement.

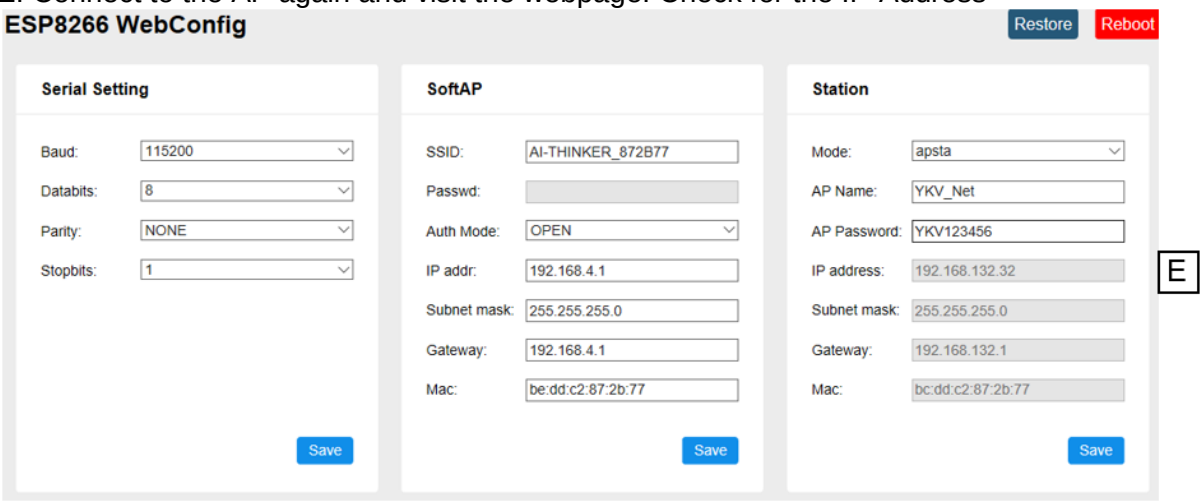
English

8.6 Using the optional equipment WIFI interface YMI-A01 (TMBA-A02-A)

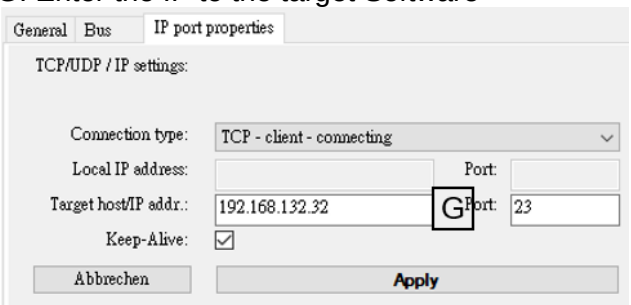
If the WIFI is not setup yet, the device will create a WIFI access point once powered up. Use your computer to connect to this access point.
The SSID is “AI_THINKER_xxxxxx”
Use a web browser to visit the webpage http://192.168.4.1/
In the webpage:
A: Set the mode to apsta
B: Enter the network and password to connect.
C: Save the setting and reboot.



D: Disconnect the AP from the computer. Reset power of the MBA-M
E: Connect to the AP again and visit the webpage. Check for the IP-Address



F: Close the webpage. Connect the Computer to the selected network.
G: Enter the IP to the target Software



English

8.6.1 Printing function

After the Software and the scale is connected propperly, weighing data can be transferred using the 

button on the scale.

Printout example:

30.06.2020	10:04:36:	SS	0.000 kg	(Stable)

Also the weighing result can be send using remote commands.

8.6.2 Remote commands

S	Send stable value
T	Tare the Scale
Z	Set the scale to zero

30.06.2020	10:04:36:	S		(Send Stable)
30.06.2020	10:04:36:	SS	0.000 kg	(Stable)

9 Menu

Access to service menu “tCH” is locked in verified balances.

To disable the access lock, destroy the seal mark and actuate the adjustment switch. For position of adjustment switch, see chap. 13.

Attention:
After destruction of the seal the weighing system 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.

9.1 Navigation in the menu

Call up menu

⇨ Switch-on the balance, in weighing mode press TARE →0← for approx. 3 sec., until the first function **AF** appears.

Select function

⇨ With help of PRINT or TARE →0←, the individual functions can be selected one after the other.

Change settings

⇨ Confirm selected function by ON OFF →. The current setting will be displayed.

⇨ Select desired setting with PRINT ↑ or TARE →0← ↓ and acknowledge by ON OFF → or reject with HOLD ←.

Exit menu/
Return to weighing mode

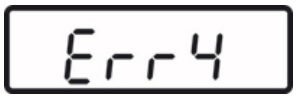
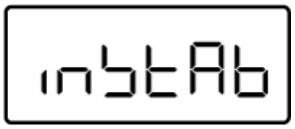
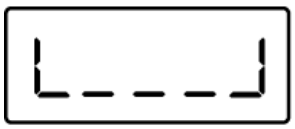
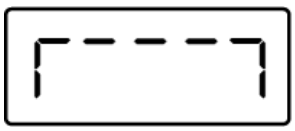
⇨ Press HOLD ←, **Exit** will be displayed. Press ON OFF →, the balance returns into the weighing mode.

English

9.2 Menu overview

Function	Settings	Description
AF Automatic shutdown Auto off	AF oFF	Automatic shutdown switched off
	AF 30	Automatic shutdown after 30 min.
	AF 60	Automatic shutdown after 60 min.
	AF 180	Automatic shutdown after 180 min.
rSt reset to factory setting		Reset weighing scale to factory setting

10 Error reports

Display	Description
	**Zero range exceeded** (on start-up or when pressing the TARE →0← key) • Load on weighing pan • Excess load, during zero setting of weighing scale • Incorrect adjusting process • Fault on load cell
	**Battery capacity exhausted**
	**Zero range exceeded**
	**Zero setting range not achieved**
	**Adjustment error**
	**Load instable**
	**Underload**
	**Overload**

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

English

11 Servicing, maintenance, disposal

11.1 Cleaning

	Before any maintenance, cleaning and repair work disconnect the appliance from the operating voltage.

11.2 Cleaning / disinfecting

Clean weighing platform (such as seat) as well as casing with household detergents or commercially available disinfectants, e.g. 70% isopropanol. We recommend a disinfectant suitable for wiping disinfection. Please follow manufacturer's instructions.

Do not use abrasive or aggressive cleaners such as spirits or alcohol or similar as they might damage the high-quality surface.

To prevent cross-contamination (fungal skin infection) please observe the following time intervals for disinfection:

- Weighing plate before and after any measurement with direct skin contact
- When required:
  - Display
  - Touch-sensitive keyboard

	Do not spray disinfectants onto appliance. Make sure that disinfectant does not penetrate the interior of the balance. Remove dirt immediately.

11.3 Sterilisation

Sterilisation of the appliance not allowed.

11.4 Servicing, maintenance

The appliance may only be opened by trained service technicians who are authorized by KERN.
We recommend a regular safety-related technical check (STK).
Disconnect the scales before opening.

11.5 Disposal

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

12 Instant help

In case of a fault in the program sequence, the balance should be shortly switched off. The weighing process must then be restarted from the beginning.

Failure:	**Possible causes:**
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 rechargeable battery / the battery is/ are inserted incorrectly or empty ▪ No rechargeable battery / no battery is/ are inserted
The displayed weight is permanently changing	▪ Draught/air movement ▪ Table/floor vibrations ▪ The weighing pan is in contact with foreign bodies or is not correctly positioned. ▪ Electromagnetic fields/ static charging (choose different location/switch off interfering device if possible).
The weighing result is obviously incorrect	▪ The display of the balance is not at zero. ▪ Adjustment is no longer correct. ▪ Great fluctuations in temperature. ▪ The balance is on an uneven surface. ▪ Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)
No Data can be transmitted on WIFI interface	▪ The network signal is not stable or too weak. ▪ The Interface is not configured correctly.

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

English

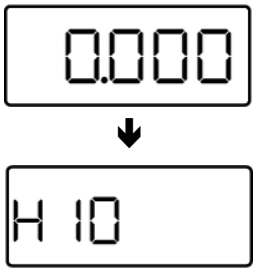
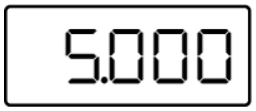
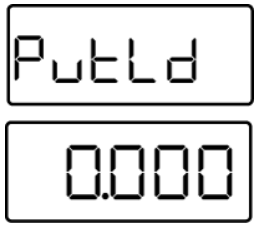
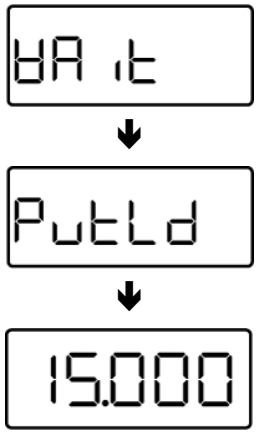
13 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each display unit with connected weighing plate 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 weighing system 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 display unit periodically in weighing operation.

	• Prepare the required adjustment weight. The adjustment weight to be applied depends on the capacity of a weighing scale, see chap. 1. Carry out adjustment as closely as possible to admissible maximum load of weighing scale. Info about test weights can be found on the Internet at: http://www.kern-sohn.com. • Observe stable environmental conditions. For warm-up time required for stabilisation see chap. 1.

English

Procedure:

	Switch on balance **Operate adjustment switch; for position see chap.14** The balance is now in service menu.
	Press PRINT or TARE →0← repeatedly until **cAL E** appears
 (example)	Confirm with ON OFF, the adjustment weight selected as last is displayed, e.g. **5000 kg**
 (example)	Select desired setting with PRINT or TARE →0← and acknowledge by ON OFF.
	**Put Ld** is shortly displayed, the first adjustment point **0.000 kg** is displayed. Unload the balance and confirm with ON OFF
 (example)	**WAit**, followed by **Put ld** is displayed, followed by the set adjustment weight. Place the adjustment weight, confirm with ON OFF. The adjustment is carried out, after that the balance switches off automatically.

An adjusting error or incorrect adjustment weight will generate an error message ("Err 4"), repeat the adjustment process.

English

14 Equipment (optional)

Item number	Type number	Product
MBA-A01	TMBA-A01-A	Height measuring rod
YKA-43	TYKA-43-A	Netzteil (EU/UK/CH)
YKA-44	TYKA-44-A	Netzteil (EU)
YMI-A01	TMBA-A02-A	WIFI Interface (factory option)