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Installation instructions
Display unit

KERN KXC

Type TKXC-TM-A

Version 1.0

2024-07

GB

TKXC-TM-A-IA-e-2410

GB

KERN KXC

Version 1.0 2024-07

Installation instructions

Display unit

Contents

1 Introduction

1.1 General notes on these instructions

INFORMATION

! Read this document completely before installing and configuring the device. Only use the device in accordance with the specifications described in this document. This serves to protect against personal injury and damage to property.

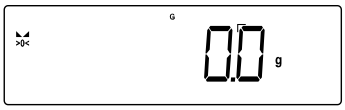
- In this document you will find the necessary information for the correct installation and adaptation of the indicator to the weighing platform or weighing bridge used.
- The operation of the display unit and the adaptation to the working and ambient conditions are described in the operating instructions for the display unit.
- The steps required to install the weighing platform or weighing bridge are described in the relevant installation instructions.
- The necessary steps for the complete installation of interface modules are described in the respective installation instructions. This document only describes the steps for opening the display unit and the intended connection points.

1.2 Presentation conventions

1.2.1 Representations of the text

Text	Designation
●	Enumeration
⇨	Instruction for action
1. **2.** **...**	Steps in assembly / installation instructions, the sequence of which must be followed
[ ]	Square brackets are used to display buttons *Example:* **[X]** button
< >	Angle brackets are used to display content that is shown on the device display (e.g. menu items, parameters, notifications, ...) *Example:* **<MENU>**

1.2.2 Representations of the device operation

Symbol	Meaning
	Short keystroke
	Long button press / press and hold button
	Display on the scales (example illustration)

1.2.3 Binding information

Important and binding information describes facts that must be emphasised, which you must take note of and which are always valid (e.g. legal provisions or terms and conditions).

INFORMATION

Here you will find important binding information

1.2.4 Additional information, tips and recommendations

Additional information, tips and recommendations can be found here

2 Description of the device

2.1 Description of the device

This device is an indicator for connection to a weighing platform or weighing bridge.

Optimum interaction between the components of the weighing system is achieved with a weighing platform or weighing bridge from KERN.

Information on weighing platforms and weighing platforms as well as already configured weighing systems from KERN can be found online at

www.kern-sohn.com

2.2 Technical data

KERN	KXC
Item number / type	TKXC-TM-A
Display	6 LCD digits, digit height 48 mm, backlit
Resolution (calibratable)	Single (Max.) 3000 e
	Multi Range/Multi Interval (Max.) 2x3000 e
Resolution (not calibrated)	999.999 d
Calibration class	III or IIII
Weighing ranges	1 or 2
Numerical steps	1,2,5,10, n
Strain gauge load cells	87-1227Ω . (minimum/maximum resistance)
Applications	Weighing, counting, checkweighing
Weighing units	g, kg, lb, pcs, %, FFA
Permissible ambient temperature	-10 °C ... + 40 °C
Operating temperature range with battery	0 °C ... + 40 °C
Air humidity	max. 80% rel. (non-condensing)
Power supply	Input voltage 100 ~ 240 V; 50 / 60 Hz; 0.4 A Overvoltage category II Mains voltage fluctuations ±10 % Schuko plug
Battery operation (option) *Values may vary depending on the connected measuring cells or interfaces.	Operating time 48 h (backlight off)
	Operating time 20 h (backlight on)
	Charging time approx. 8 h
	Optional rechargeable battery YKR-01 3.7 V; 3700 mAh
Display unit dimensions (without holder)	232 x 80 x 150 (W x D x H) [mm]
Net weight (kg)	1,6
Interfaces (optional)	RS-232, USB device, WLAN, analogue (0-10V, 4-20mA), Ethernet, Bluetooth
Altitude metres	Up to 2000 m
IP protection	IP 68
Degree of soiling	2

3 Overview of the device

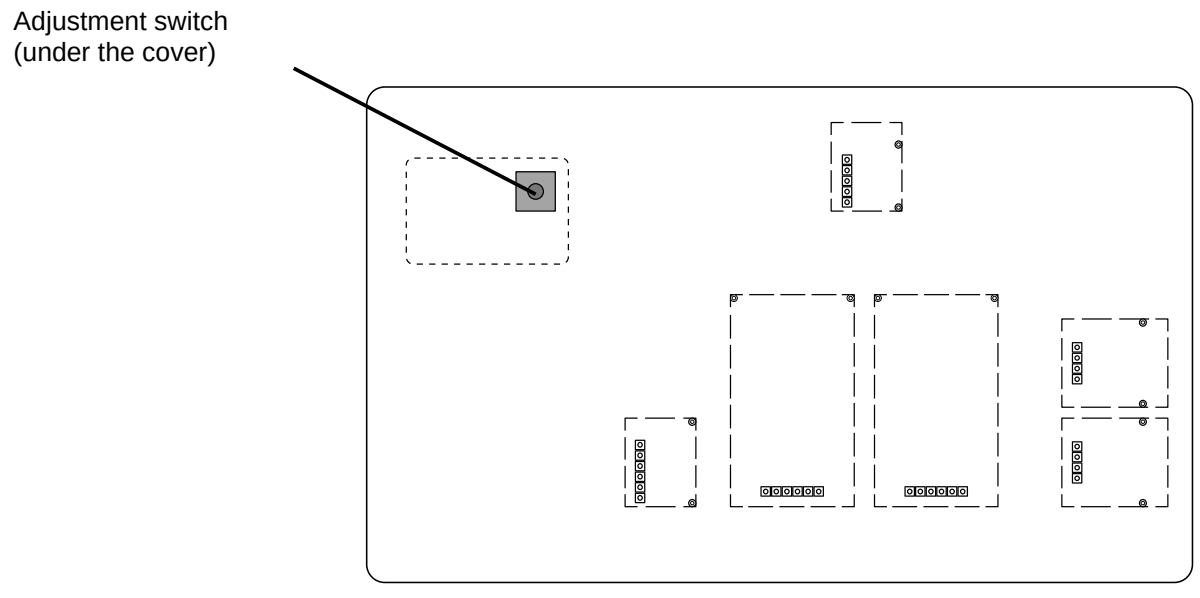
3.1 Keyboard

This document only describes the button functions relevant for configuration. Further functions can be found in the operating instructions for the display unit.

Button	Designation		Function	Numerical input
ON / OFF	**ON/OFF**		➢ Switch on ➢ Switch off (long key-stroke)	
F2	**F2**	←	➢ Navigation button ← ➢ Menu level back ➢ Exit menu	➢ Select previous digit
	CHANGE	→	➢ Navigation button → ➢ Activate menu item ➢ Confirm selection	➢ Select next digit
PRINT	**PRINT**	↓	➢ Navigation button ↓ ➢ Scroll forwards menu item	➢ Decrease flashing digit (0 - 9)
→0←	**ZERO**	↑	➢ Navigation button ↑ ➢ Scroll backwards menu item	➢ Increase flashing digit (0 - 9)

3.2 Adjustment switch

Board of the display unit:



4 General safety information

INFORMATION

Read this document completely before installing the device. Only use the device in accordance with the specifications described in this document. This serves to protect against personal injury and damage to property.

4.1 Control on takeover

Please check the packaging immediately upon receipt and the appliance for any visible external damage when unpacking.

4.2 Observe accompanying documentation

Read all the documents supplied with the device completely before using it. Observe all notes and instructions contained therein.

4.3 General information on warning notices

Warnings are used in this document to warn you of possible personal injury or property damage in certain situations.

Signal word	Description of the
DANGER	Failure to observe the instructions will lead directly to serious injury, permanent impairment (e.g. loss of a limb) or death of the user or third parties
WARNING	Failure to observe the instructions may result in serious injury, permanent impairment (e.g. loss of a limb) or death of the user or third parties
CAUTION	Failure to observe the instructions may result in minor injuries or temporary damage to the user or third parties (e.g. minor cuts)
NOTE	Failure to observe the instructions may result in damage to property

Warning of personal injury:

⚠ SIGNAL WORD

Symbol

Type and source(s) of the hazard

Possible consequence(s) of the hazard

⇨ Measures to avoid the hazard

Warning of material damage:

NOTE

⇨ Measures to prevent damage to property

Symbols in warning notices:

Symbol	Meaning
Warning signs	Warning signs warn you of dangers that may lead to personal injury. The symbol indicates the type of hazard.
	Indicates general hazards or a danger point
	Warning of electrical voltage
	Warning of flammable substances
	Warning of explosive substances
Command sign	Mandatory signs prescribe measures that you must take to avoid personal injury or damage to property. The symbol indicates the necessary actions or objects to prevent damage.
	Indicates a prescribed action

4.4 Intended use

- The indicator is a class III verifiable device and is designed for non-automatic scales and weighing systems with commercially available strain gauge load cells in industrial environments.
- The evaluation unit is designed for displaying, recording, storing, forwarding and analysing measurement data within the approved environmental conditions.
- The analyser may only be operated with original spare parts.

4.5 Improper use

- Never operate the evaluation unit in potentially explosive atmospheres.
- The evaluation unit must not be cleaned with high-pressure cleaners.
- The evaluation unit must not be operated with incompletely connected or damaged weighing platforms.
- This analyser does not comply with the Medical Devices Act (MPG) and is not intended for medical purposes.

4.6 User qualification

Scales or weighing systems using this indicator may only be installed by qualified personnel. The relevant guidelines and regulations for each area of application must be observed.

4.7 Ambient conditions

- The ambient conditions described in the operating instructions must be observed. Please refer to the technical data in the device overview.
- Do not operate the appliance in areas at risk of explosion or in areas at risk of explosion due to gases, vapours, mists or dusts.

4.8 Mains connection

General:

Improper use of electrical appliances can result in them catching fire or the user suffering an electric shock. The following therefore applies to mains-powered devices and their connection:

- Only connect the scales to the mains if the information on the scales (sticker) matches the mains voltage.
- Ensure that the mains plug is accessible at all times.
- Protect the mains plug and the mains cable from contact with liquids.
- Ensure that the mains cable is never pinched or kinked.
- Ensure that the mains cable does not pose a tripping hazard.
- Check the mains cable and mains plug for damage before each use.

4.9 Rechargeable batteries and batteries

General:

Improper use of rechargeable or non-rechargeable batteries can cause them to catch fire, explode, emit toxic vapours or release corrosive liquids. The following therefore applies to rechargeable and non-rechargeable batteries:

- Protect from cold, fire and heat. Observe the technical data regarding the authorised operating temperature ranges.
- Never expose to high pressure or microwaves.
- Do not bring into contact with liquids or chemicals.
- Never bring the electrical contacts of rechargeable batteries and batteries into contact with metal objects or short-circuit them.
- Never modify rechargeable batteries, batteries and chargers.
- Batteries must never be charged.
- Never use or charge a defective, damaged or deformed battery.

Insertion, replacement and storage:

Replace rechargeable batteries and batteries only with types recommended by the manufacturer.

If possible, remove the rechargeable batteries and batteries and store them separately (protected against short circuits) if the scale is not to be used for a longer period of time. Leaking battery fluid could damage the scale.

Charging:

Disconnect the appliance from the power supply immediately if it develops odours, becomes hot, discoloured or deformed. The appliance must then be taken out of service.

If battery fluid escapes:

Liquid can escape from damaged rechargeable batteries and batteries. Please note the following:

- Avoid contact between leaking liquid and your skin, eyes or clothing.
- Wear protective clothing/equipment if you want to touch and remove a defective battery.
- Thoroughly clean any areas of skin or clothing that have come into contact with battery fluid with soapy water and then rinse the affected areas thoroughly with clean water.
- If you get battery fluid in your eyes, rinse your eyes immediately with clean water. Then consult a doctor immediately.

4.10 Electrostatic sensitive components

Electrostatic discharge (ESD) can cause damage to electronic components. Damaged components do not always lead to malfunctions immediately, but sometimes only after some time.

Therefore, take precautions for ESD protection before removing hazardous components from the packaging and carrying out work in the electronics area:

- Ground yourself before touching electronic components (ESD clothing, wristband, shoes, etc.).
- Only carry out work on electronic components at suitable ESD workstations (EPA) with suitable ESD tools (antistatic mat, conductive screwdrivers, etc.).
- Only transport electronic components outside the EPA in suitable ESD packaging.
- Never remove electronic components from their packaging if they are outside the EPA.

5 Assembly, installation and commissioning

INFORMATION

- Always follow the instructions in this manual before starting work.
- The illustrations are examples that may differ from the actual product (e.g. positions of the components).

⚠ DANGER

Electric shock due to contact with live components

Electric shock leads to serious injury or death

- ⇨ Disconnect the appliance from the mains voltage before opening it.
- ⇨ Only carry out installation work on devices that are disconnected from the mains voltage.

5.1 Unpacking and checking

Remove all parts of the scope of delivery from the packaging and remove the packaging materials. Then check that all parts of the scope of delivery are present and undamaged.

5.2 Scope of delivery

- Display unit
- Mounting bracket
- Ferrite core
- Operating instructions Display unit
- Installation instructions for display unit

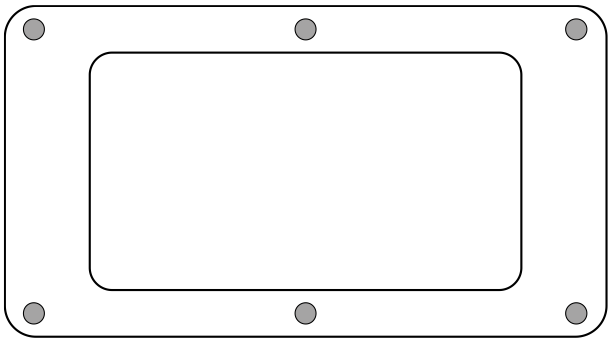
5.3 Prepare weighing platform or weighing platform

The preparation of the weighing platform or weighing bridge, such as unpacking, removing transport locks and levelling, is described in the respective installation instructions. Carry out the steps described there.

5.4 Open display unit

1. Disconnect the appliance from the mains voltage.

2. Loosen the screws on the back of the display unit.

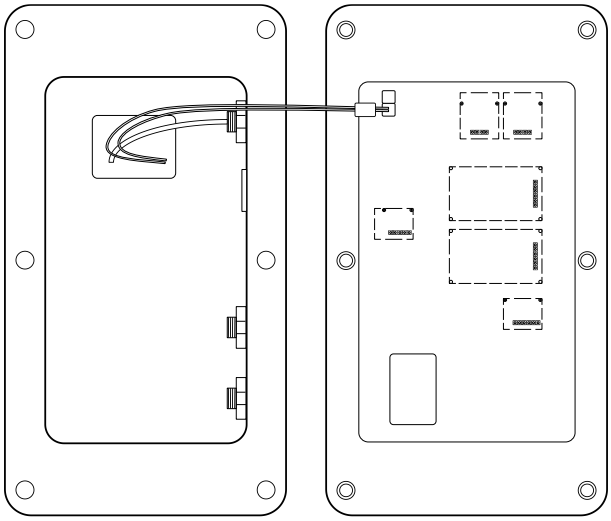


3. 

NOTE

⇨ Make sure that you do not damage any cables (e.g. by tearing them off or pinching them).

Carefully open both halves of the display unit.



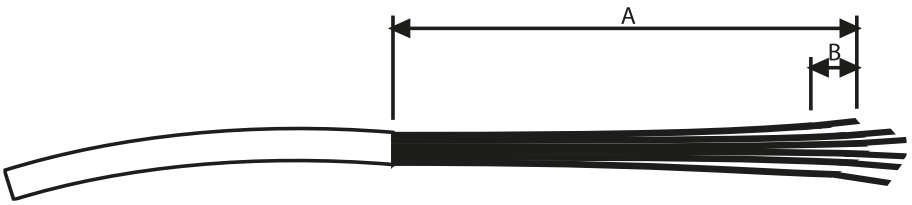
5.5 Connect the indicator to a weighing platform or weighing bridge

Strip the cable:

1. Strip the cable according to the following illustration with the following dimensions.

   A = approx. 30 mm

   B = approx. 5 mm

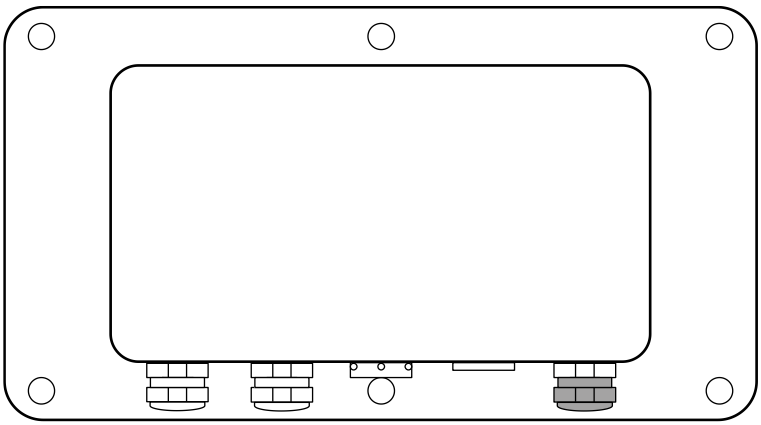


Insert the cable into the display unit:

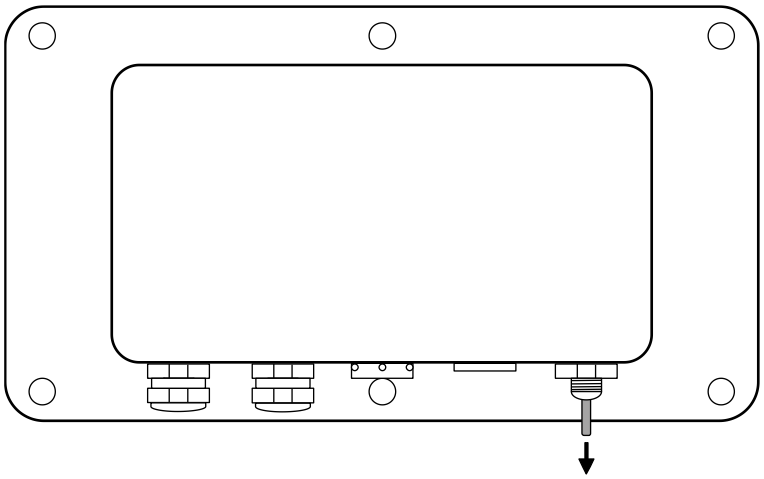
2. **NOTE**

   ⇨ Do not open the pressure equalisation screw on the display unit. This can be recognised by the condensation holes in the screw head. Removing it can lead to moisture in the device and thus to damage.

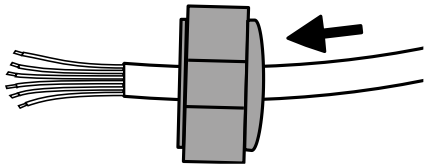
   Open the right outer PG screw on the back of the display unit.



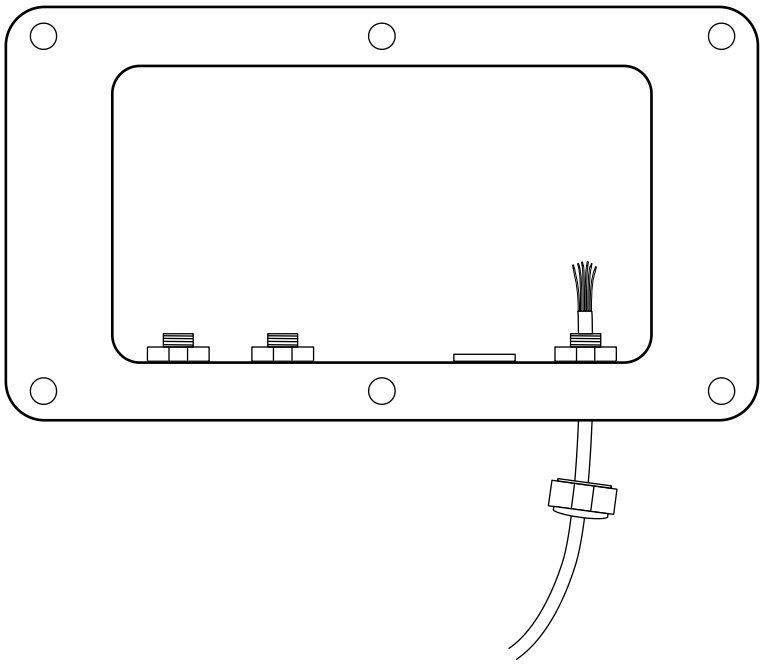
3. Remove the sealing pin from the cable gland.



4. Guide the cable with the cable cores through the PG screw.

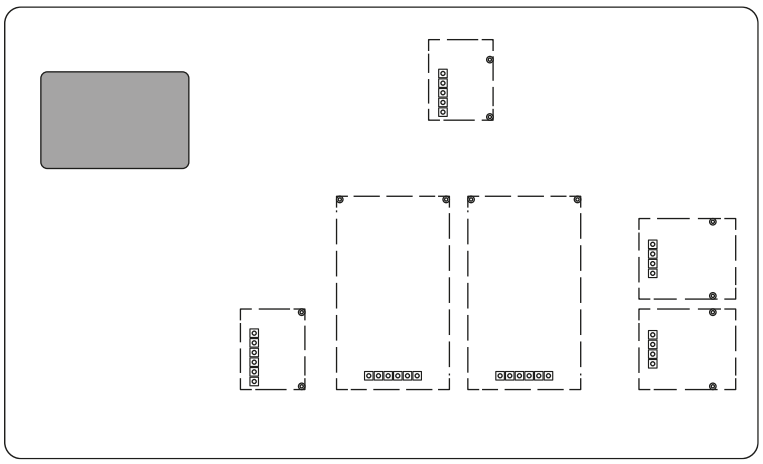


5. Feed the cable through the previously opened cable gland.

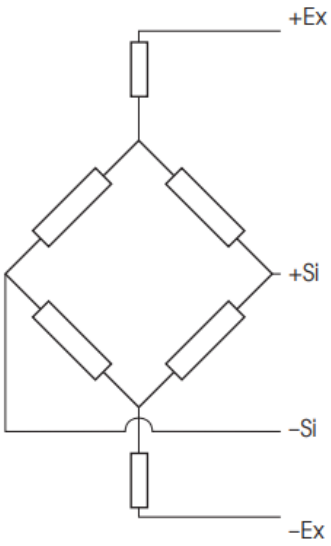


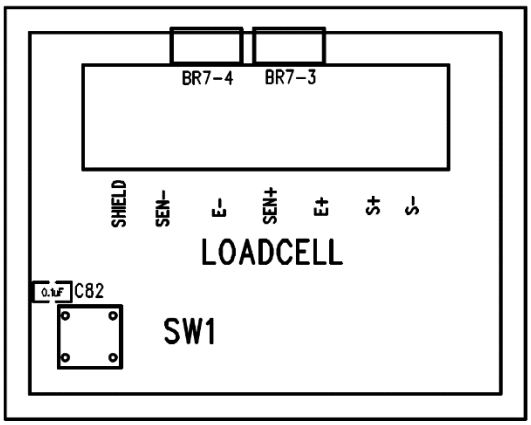
Connect the cable to the circuit board:

6. Remove the cover over the load cell connection.



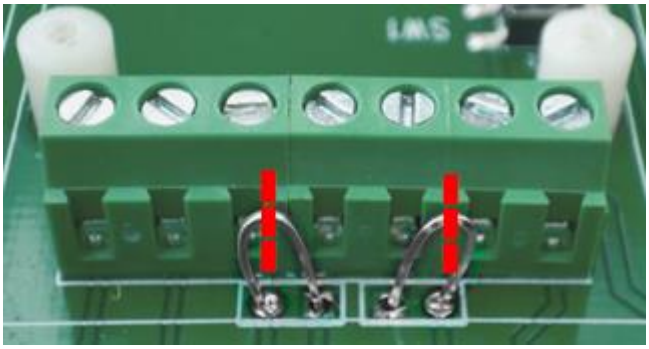
7. Connect the wires of the cable to the display unit according to the labelling on the load cell and the circuit board.



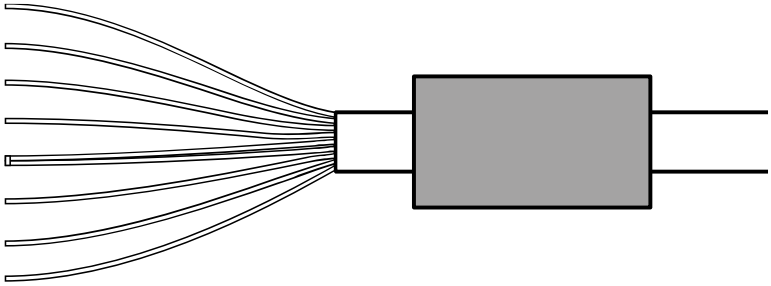


Note:

The evaluation unit is preconfigured for 4-wire. When connecting a 6-wire load cell, the bridges must be cut.



8. Attach the ferrite core to the cable.



9. Secure the cable to the circuit board with cable ties so that it and the ferrite core cannot slip when closing the display unit.

10. Replace the cover over the load cell connection.

Note: If you want to configure a calibrated device, do not replace the cover until the configuration is complete.

The adjustment switch must be pressed frequently to configure a calibrated device. The adjustment switch is located inside the housing.

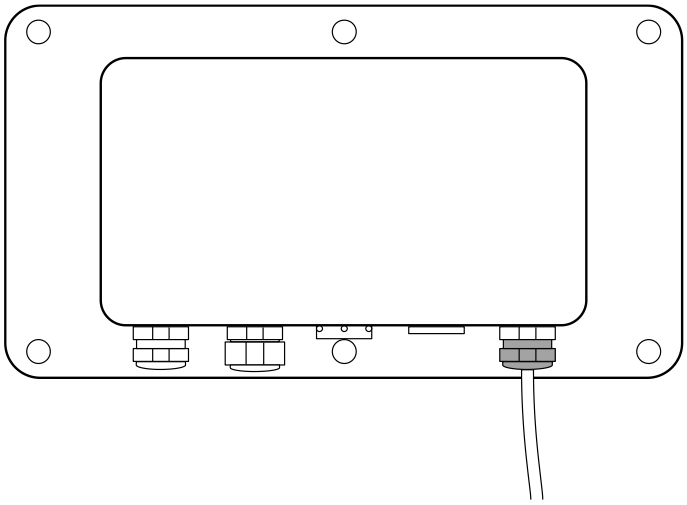
Close the screw connection:

11.

NOTE

- ⇨ Ensure that the load cell cable inside the housing is of a suitable length and cannot be pinched or crushed when closing the housing.
- ⇨ Tighten the PG screw firmly so that it cannot unscrew again due to vibrations and moisture can penetrate the appliance. Otherwise the appliance could be damaged.

Close the PG screw connection and tighten it firmly from both sides using an appropriate open-end spanner (tightening torque = 4 to 5 Nm).



5.6 Install optional battery

⚠ WARNING

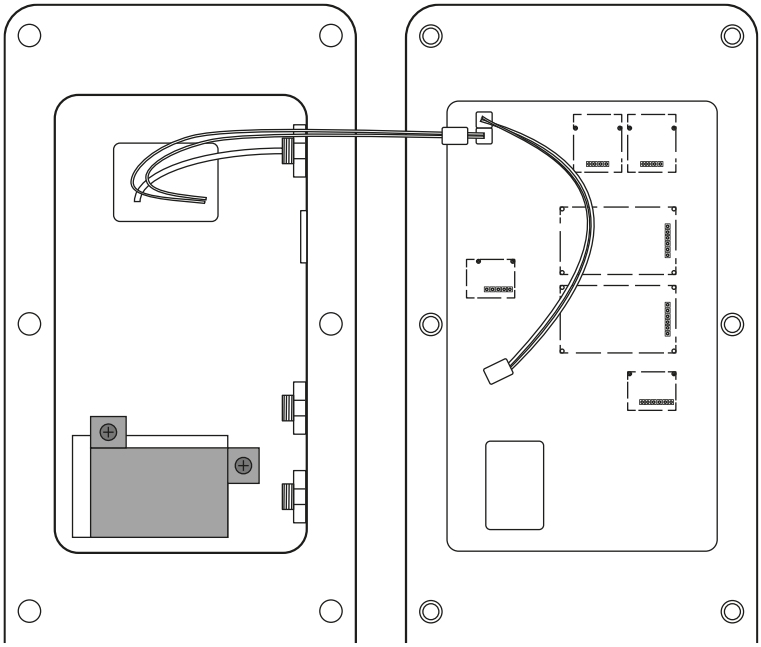
Risk of fire and explosion due to incorrect handling of rechargeable batteries and batteries

Fire or explosion can lead to serious injuries

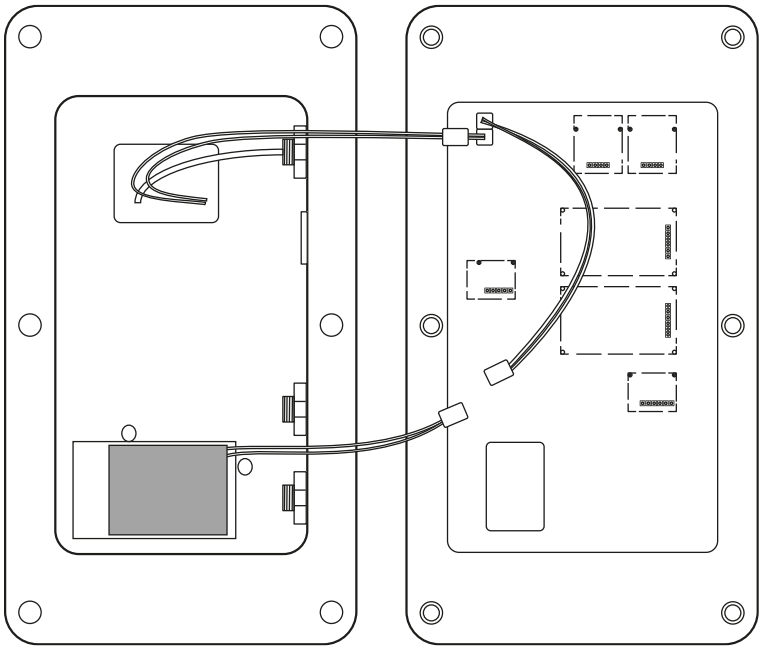
- ⇨ Please be sure to observe the notes on rechargeable batteries and batteries in the chapter "Rechargeable batteries and batteries"
- ⇨ Never recharge batteries. Only rechargeable batteries are suitable for recharging.

- The battery for this device is optional
- Information on charging the battery (charging time, charging indicator) can be found in the relevant operating instructions for the display device.

1. Open the display unit (see Chap. 5.4).
2. Open the cover in the rear housing section (remove 2x Phillips screw)

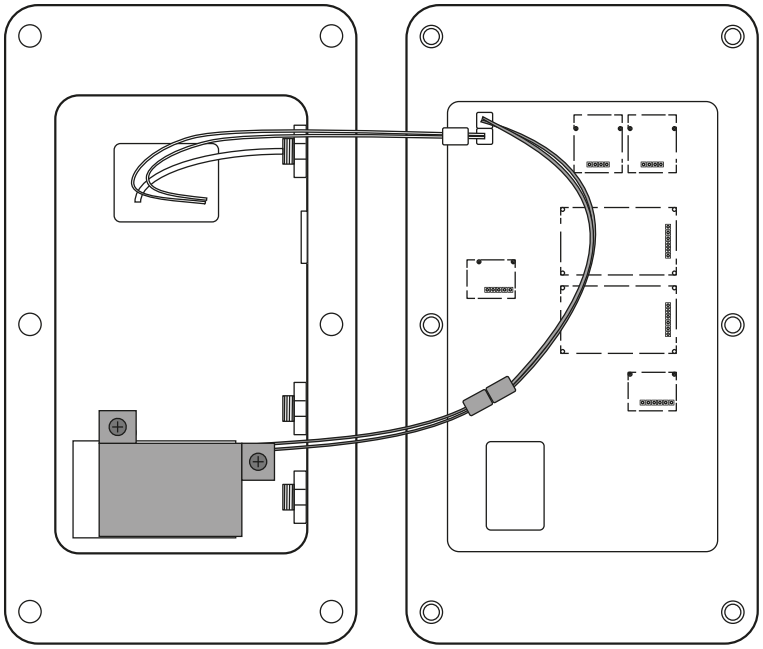


3. Insert battery



4. Reattach the cover

5. Connect the battery to the plug on the cable

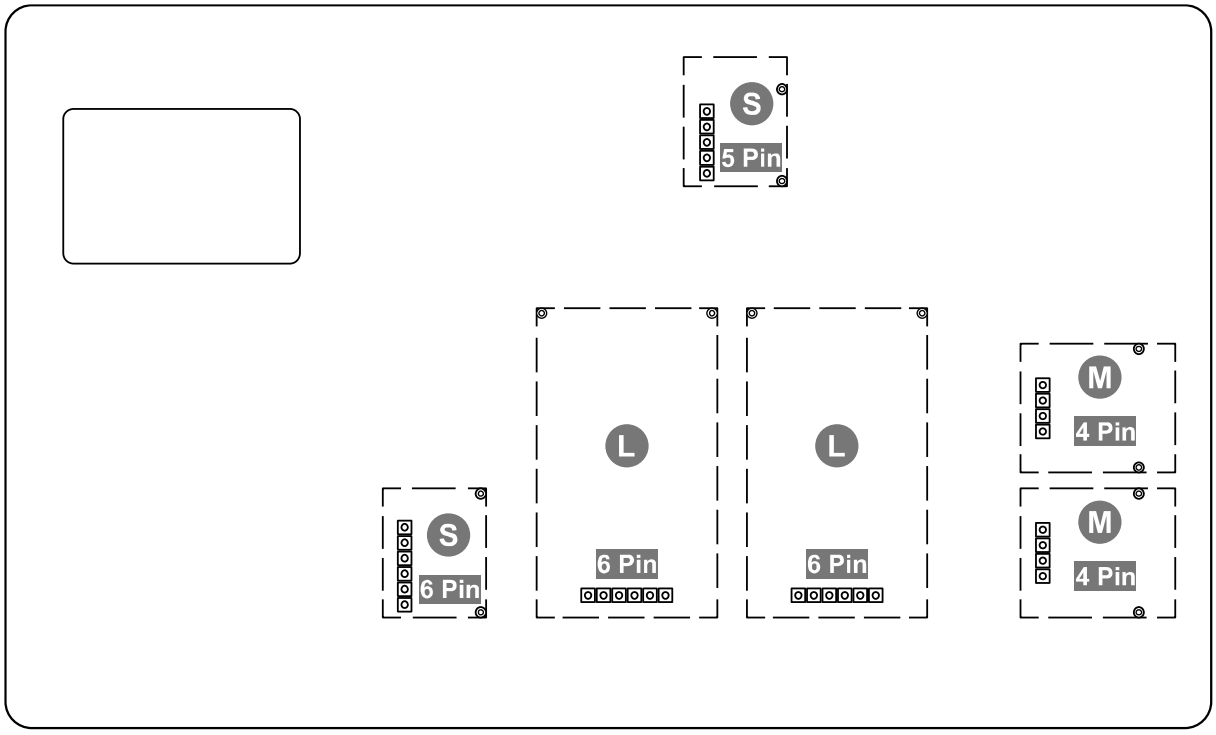


5.7 Install optional interface modules

- This chapter describes how to open and close the display unit to install the optional KUM interfaces.
- The assembly of the KUM interfaces themselves is described in the respective installation instructions.

5.7.1 Circuit board

The circuit board of certain display units offers several slots for KERN accessories, with which you can expand the range of functions of your device if required. You can find information on this on our homepage: **www.kern-sohn.com**



The various slots are shown in the illustration above. There are three slot sizes for optional modules: S, M, L. These have a specific number of pins.

The correct position for your module is determined by the size and number of pins (e.g. size L, 6 pins).

If there are several identical slots on the board, it does not matter which slot you select. The device automatically recognises which module it is.

5.7.2 Install interface modules

For wireless interface modules, the display device only needs to be opened and the respective module attached to the circuit board. These steps are described in the respective installation instructions for the module.

Install the wired interface module on the circuit board:

1. Open the display unit (see Chap. 5.4).
2. Install the module on the circuit board according to its installation instructions.

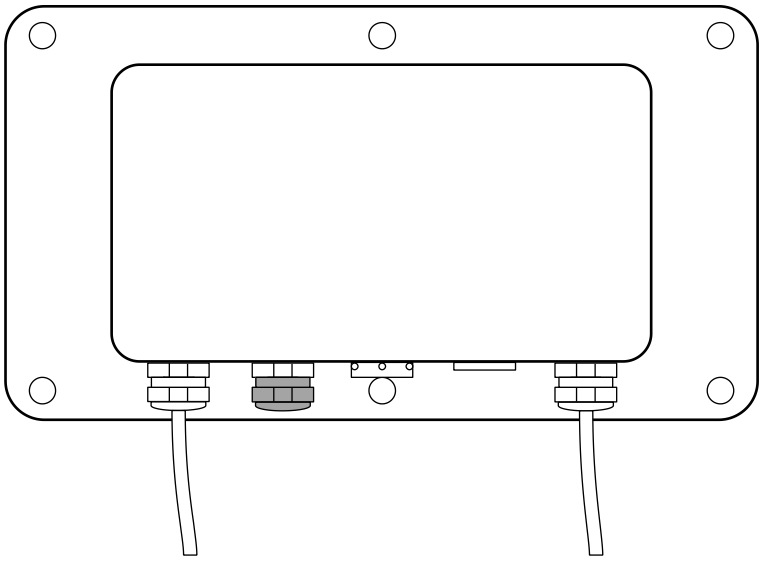
Open the cable gland:

3. **NOTE**

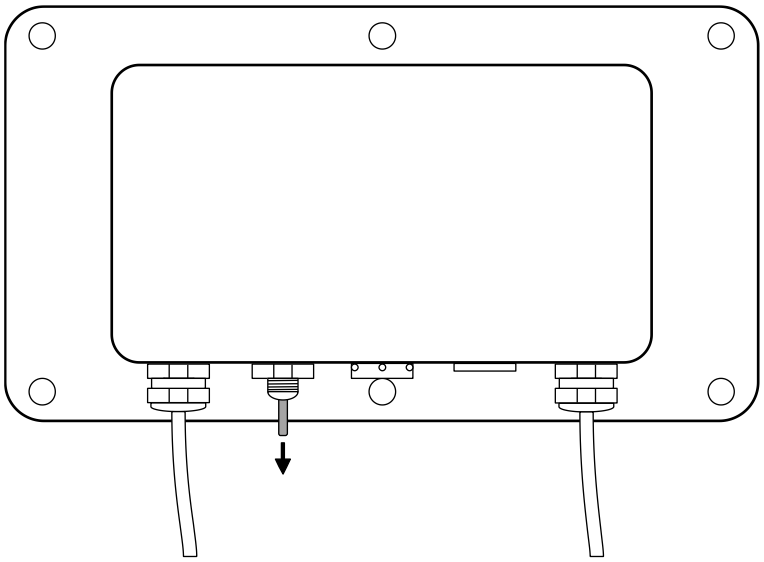
   ⇨ Do not open the pressure equalisation screw on the display unit. This can be recognised by the condensation holes in the screw head. Removing it can lead to moisture in the device and thus to damage.

   Open the marked PG screw on the back of the display unit.

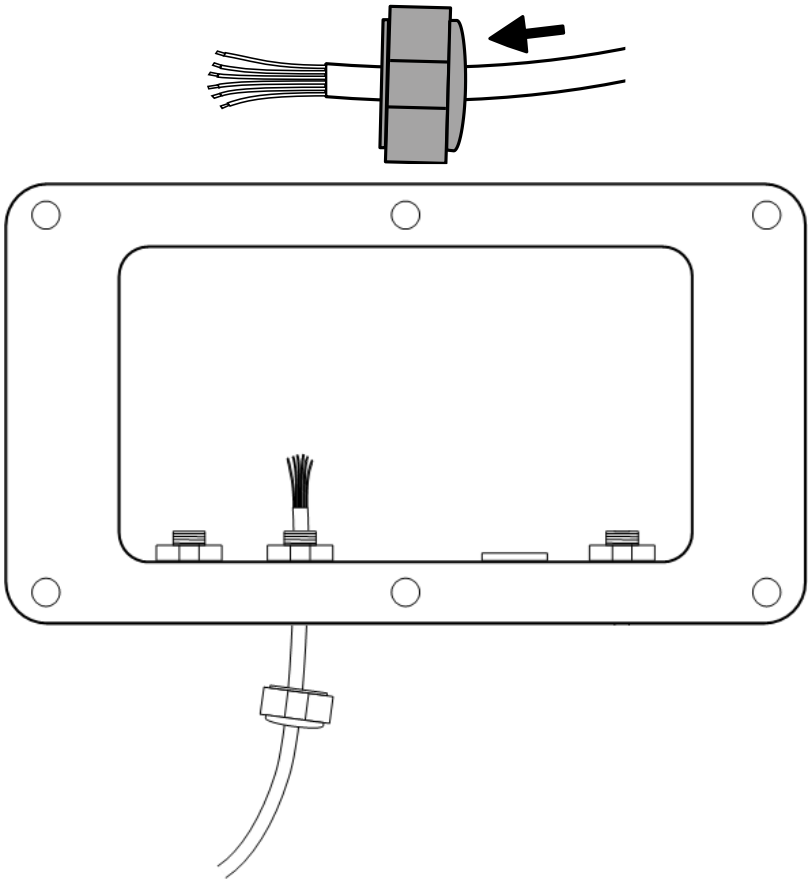
   Note: If two wired interfaces are to be installed, the dummy plug (2nd cable gland from the right) can be replaced by a commercially available stainless steel cable gland of size M12. The cable gland must fulfil protection class IP68.



4. Remove the sealing pin from the cable gland.



5. Guide the cable through the PG screw in accordance with the module's installation instructions



Close the screw connection:

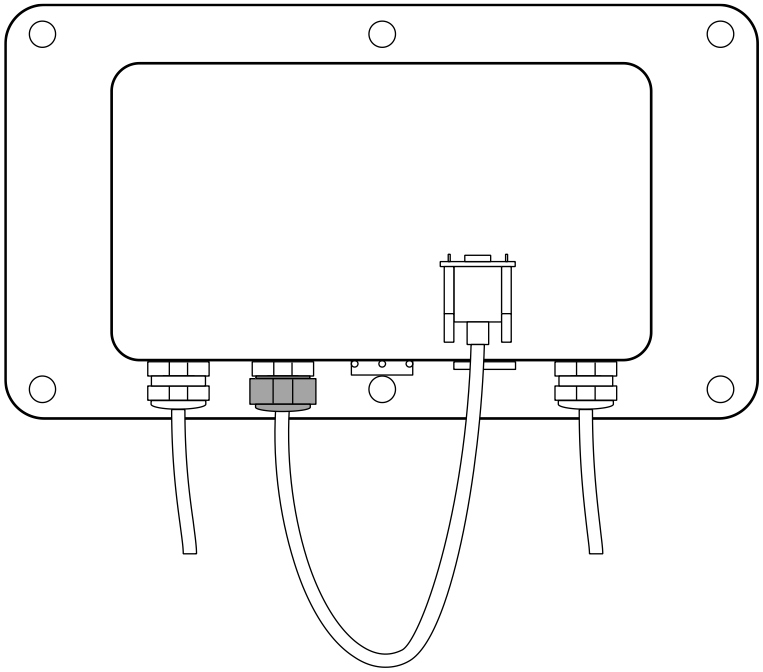
6.

NOTE

⇨ Ensure that the cable inside the housing is of a suitable length and cannot be pinched or crushed when closing the housing.

⇨ Tighten the PG screw to the tightening torque specified below so that it does not unscrew again due to vibrations and moisture cannot penetrate the appliance. Otherwise the appliance could be damaged.

Close the PG screw connection and tighten it firmly from both sides using an appropriate open-end spanner (tightening torque = 4 to 5 Nm).



Example RS-232

5.8 Optional installation of the alibi memory and the real-time clock

Further information on the alibi memory and real-time clock can be found in the respective installation instructions.

1. Open the display unit (see Chap. 5.4).
2. Install the alibi memory and real-time clock according to their installation instructions.
3. After installation, it is necessary to initialise the alibi memory and set the date and time.
   - The initialisation of the alibi memory is described in Chap. 6.5.5 is described.
   - The date and time settings can be found in the operating instructions for the display unit.

5.9 Close display unit

NOTE

⇨ Make sure that you do not damage any cables (e.g. by tearing them off or pinching them).

⇨ Make sure that any existing seals are in their intended place.

1. Carefully fold both halves of the display unit together.
2. Screw the display unit together (tightening torque = 5 Nm ± 5%).

If you want to configure a calibrated device, do not close the display device until the configuration is complete.

The adjustment switch must be pressed frequently to configure a calibrated device. The adjustment switch is located inside the housing.

5.10 Mains operation

INFORMATION

Only use original KERN power supply units

⚠ WARNING

Risk of electric shock and fire due to defective power supply units or short circuit

Electric shock and fire can lead to serious injuries

⇨ Be sure to observe the notes on the power supply unit and mains connection in the "Mains connection" chapter.

Connect the scales to the power supply:

⇨ Insert the mains plug into the socket

5.11 Initial commissioning

In order to obtain accurate weighing results with electronic scales, the scales must have reached their operating temperature. The scale must be connected to the power supply (mains connection, rechargeable battery or battery) for this warm-up time. Information on the warm-up time can be found in the technical data of the load cell.

6 Configuration

INFORMATION

- Always follow the instructions in this manual before starting work.
- The illustrations are examples that may differ from the actual product (e.g. positions of the components).

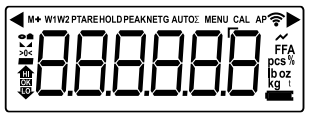
To configure the indicator in the service menu, the following configuration data of the weighing system must be known:

- Calibratable or non-calibratable device
- Number of weighing ranges and scale type (multi-range scale or multi-interval scale)
- Basic unit
- Number of decimal places displayed
- Maximum loads
- Readability

Further menus and settings (e.g. application menu, setup menu) are described in the operating instructions for the display unit.

6.1 Switch on

⇨ Press **[ON/OFF].**



⇨ The scales carry out a self-test

⇨ Then configure the device uncalibrated or calibrated (see the following chapter)

6.2 Switch off

Switch off the scale in weighing mode:

⇨ Keep **[ON/OFF]** pressed

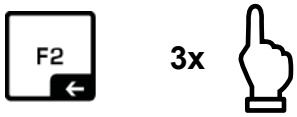
⇨ The scales switch off

Switch off the scale in the service menu (example starting from menu level 3):

Example: Current parameter setting in third menu level

⇨ The scale is located at menu level 3

⇨ Press **[←]** several times (3 times in this example)



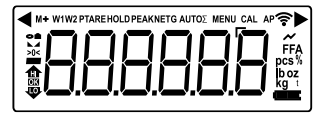
⇨ The scales switch off when the first menu level is exceeded

The scale switches off automatically when you change parameters in the menu and leave the second menu level (when navigating back to level 1).

6.3 Open service menu

6.3.1 Open service menu in non-calibratable mode

The menu can no longer be opened in this way once the calibration capability has been activated.



⇨ Switch on the device

⇨ Press and hold **[ON/OFF]** and **[TARE] at the** same time while the self-test is being carried out

⇨ Wait until **<AdJuSt>** appears on the display

⇨ Release buttons

⇨ The device can now be configured in uncalibrated mode

6.3.2 Open the service menu in calibratable mode

INFORMATION

Please note that to configure a calibrated device, the calibration seal must be destroyed and the scale must be recalibrated and sealed by an authorised body (e.g. when converting to another platform). On initial delivery, the evaluation device is not calibrated and not sealed.

⚠ DANGER

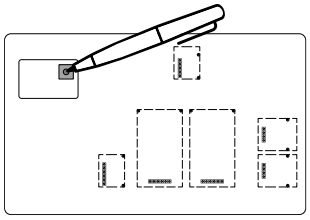
Electric shock due to contact with live components

Electric shock leads to serious injury or death

⇨ Do not touch any live components, only the adjustment switch

NOTE

⇨ Please be sure to observe the notes on electrostatically sensitive components in the chapter "Electrostatic sensitive components".



⇨ Remove the cover of the adjustment switch on the circuit board (for the position of the adjustment switch, see Chap. 3.2)

\+

ON
OFF

⇨ Switch on the appliance and press the adjustment switch

⇨ Wait until <H 10> appears on the display

⇨ Release buttons

⇨ The device can now be configured in calibrated mode

6.3.3 Exit service menu

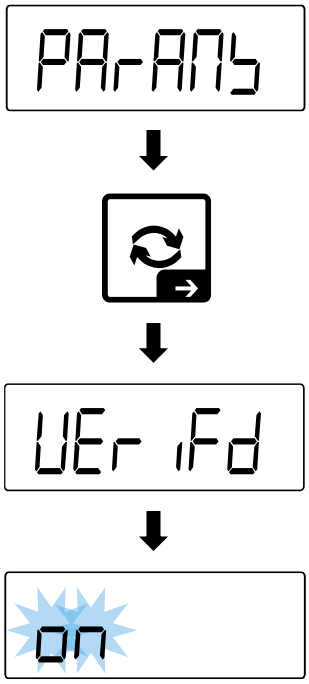
The service menu can be exited by pressing the [🡐] button. To do this, press it repeatedly until the top menu level is reached. After pressing it again, the device switches off.

6.4 Configure weighing parameters

All weighing parameters can be configured in the **<PArAMS>** menu.

6.4.1 Activate calibration capability

The menu item for activating the calibration capability is only visible in the calibratable mode of the service menu (press the adjustment switch, see Chap. 6.3.2).



⇨ Navigate to **<Params>** with **[🡅]** or **[🡇]**

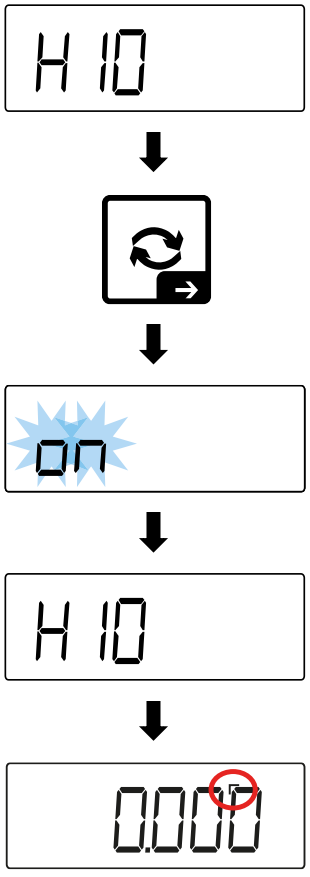
⇨ Press **[➔]**

⇨ Select **<UEr iF>**

⇨ Select **<on>**

6.4.2 Activate increased resolution for calibratable devices

- The increased resolution makes it easier to carry out the conformity assessment by displaying an additional decimal place.
- The query for increased resolution only appears if the device has been set to calibratable and the adjustment switch is pressed again after a restart (press the adjustment switch, see Chap. 6.3.2).
- The increased resolution is displayed after it is activated and the menu is exited. In weighing mode, the 10-fold resolution (additional decimal place in brackets) is then displayed until the next restart.
- As soon as you switch to another menu item and change a parameter, the query disappears from the menu. A new enquiry is then only possible after restarting in calibratable mode and pressing the adjustment switch again.



⇨ Scale displays <H 10>

⇨ Press [➔]

⇨ Select <on>

⇨ You can then navigate to another menu item using [🡅] or [🡇]

⇨ After exiting the menu, the additional decimal place is displayed

6.4.3 Setting weighing ranges

⇨ Navigate to <rAnGES> with [🡅] or [🡇]

⇨ Press [➔]

⇨ Select the number of weighing ranges:

1	1 Weighing range
2	2 weighing ranges

⇨ Press [➔] to confirm the setting

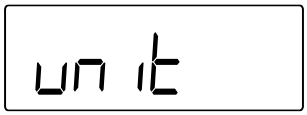
When selecting 2 weighing ranges:

⇨ Select scale type:

MuL int	Multi-interval scale
MuLrnG	Multi-range scales

⇨ Press [➔] to confirm the setting

6.4.4 Set basic unit

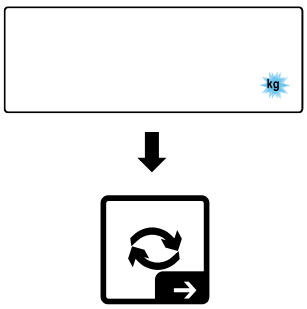


⇨ Navigate to <un it> with [🡅] or [🡇]

⇨ Press [➔]

⇨ The scale switches to the weighing unit display.

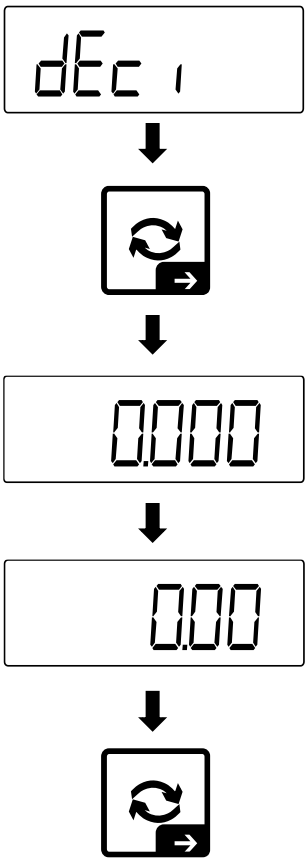
⇨ Weighing unit starts to flash.



⇨ Use [↑] or [↓] to select the desired weighing unit

⇨ Press [➔] to confirm the setting

6.4.5 Set decimal places



⇨ Navigate to <dEc 1> with [↑] or [↓]

⇨ Press [➔]

⇨ Use [↑] or [↓] to select the number of decimal places

⇨ Press [➔] to confirm the setting

6.4.6 Set maximum weighing range(s)

NOTE

⇨ Do not enter a value that exceeds the authorised maximum load of the load cell and the dead load on it. Otherwise, there is a risk that the end user may damage the load cell by applying excessive weights.

⇨ Navigate to **<max>** with **[↑]** or **[↓]**

(For multiple weighing ranges **<MAH 1>** (first weighing range), **<MAH 2>** (second weighing range))

⇨ Press **[➔]**

⇨ Scale switches to numerical input

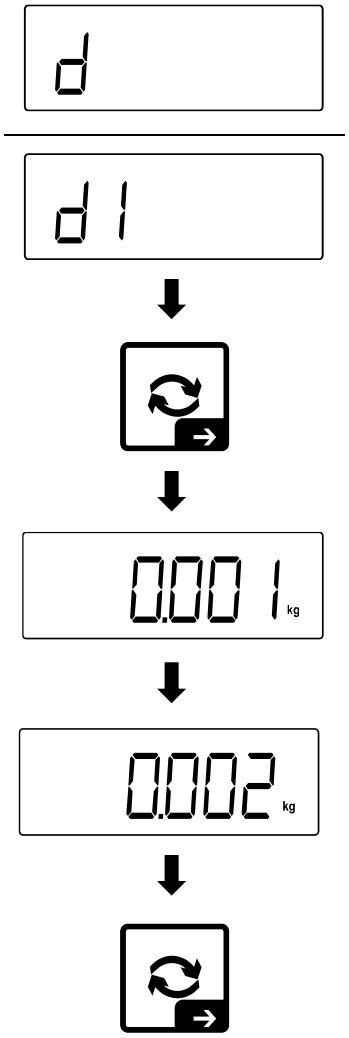
⇨ Set maximum load (for numerical input, see chapter 3.1)

⇨ Press **[➔]** to confirm the setting

(For other weighing ranges, proceed as described above to set the next maximum load)

6.4.7 Set readability

If you configure a calibratable device, the readability **d** corresponds to the calibration value **e**.



⇨ Navigate to **<d>** with **[🡅]** or **[🡇]**

(For multiple weighing ranges **<d 1>** (readability of first weighing range), **<d2>** (readability of second weighing range))

⇨ Press **[➔]**

⇨ Set the readability with **[🡅]** or **[🡇]**

⇨ Press **[➔]** to confirm the setting

(For other weighing ranges, proceed as described above to set the next readability)

6.5 Carry out linearisation and adjustment

INFORMATION

- **<u>During initial commissioning, linearisation must be carried out after setting the weighing parameters.</u>**
- The accuracy of the calibration weight must be at least equal to or better than the readability **d** of the scale.
- The maximum load of the scale must not be exceeded during linearisation and adjustment.
- You can find information on test weights on the Internet at: **http://www.kern-sohn.com**

NOTE

⇨ For linearisation and adjustment, ensure that the ambient conditions are stable (e.g. avoid vibrations or air currents).

⇨ Please note that a warm-up time is required for linearisation and adjustment so that the scale itself is stabilised. The warm-up time can be found in the technical data of the load cell.

⇨ Make sure that only the calibration weight is on the weighing plate / load receptor during linearisation and adjustment and that no other load is present.

6.5.1 Linearisation with a weighing range

INFORMATION

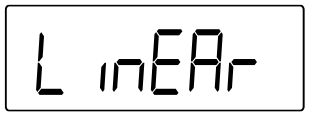
Carry out user-defined 2-point linearisation and adjustment as close as possible to the maximum load of the scale.

These descriptions apply to the following weighing range settings:
<PArAMS>→ <rAnGES>→ <1>

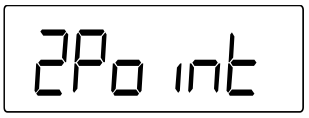
Example of 2-point linearisation:

⇨ Navigate to <AdJuSt> with [↑] or [↓]

⇨ Press [➔]

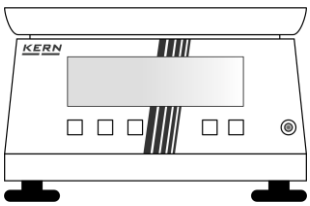


⇨ Select <LinEAr>



⇨ Select the number of linearisation points:

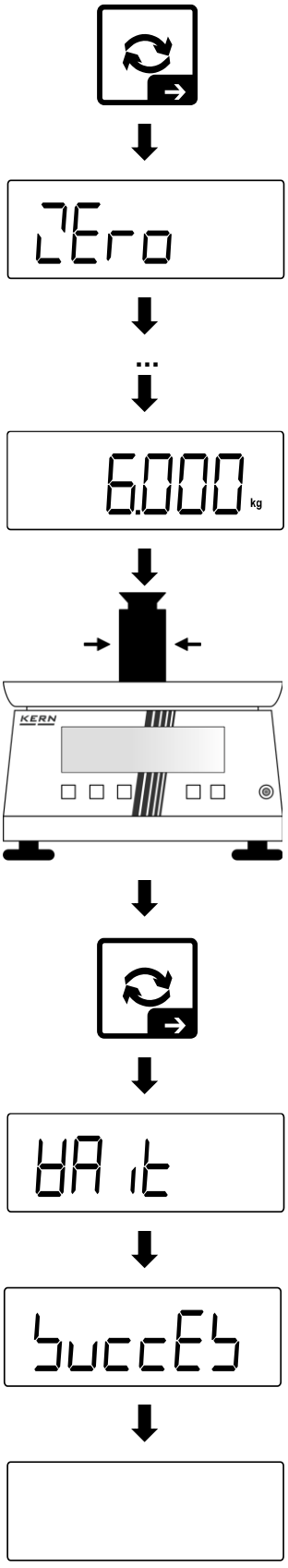
2Point	2-points (0, user-defined value)
3Point	3 points (0, centre, max.)
5Point	5 points (0, ¼ max., ½ max., ¾ max., max.)



⇨ Unload the scales / load receptor

⇨ Press [➔] to confirm the setting

⇨ Enter user-defined load (for numerical input, see chapter 3.1)



⇨ Press **[➔]**

⇨ The zero point is determined first

⇨ Scale displays <ZEro>→ <PutLd> one after the other

⇨ Scale changes to display the load (in this example load = 6 kg)

⇨ Place the calibration weight in the centre of the weighing plate

⇨ Press **[➔]**

⇨ Scale performs linearisation

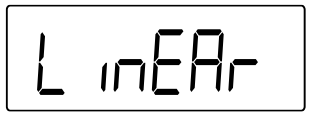
⇨ Scale displays <WAit>→ <SUCCES> one after the other

⇨ Scale display switches off

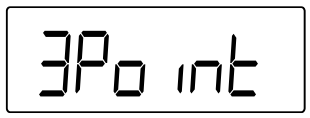
Example of 3-point linearisation (similar to 5-point linearisation):

⇨ Navigate to <AdJuSt> with [🡅] or [🡇]

⇨ Press [➔]

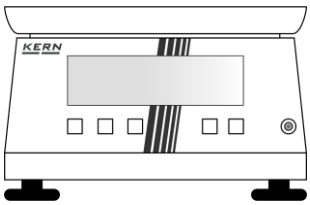


⇨ Select <L inEAr>



⇨ Select the number of linearisation points:

2Po int	2-points (0, user-defined value)
3Po int	3 points (0, centre, max.)
5Po int	5 points (0, ¼ max., ½ max., ¾ max., max.)



⇨ Unload the scales / load receptor

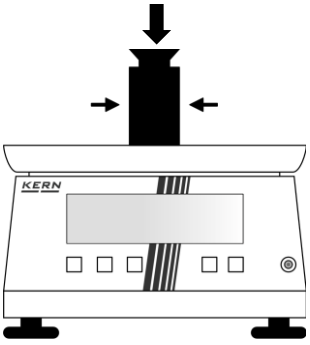
⇨ Press [➔] to confirm the setting

⇨ The zero point is determined first

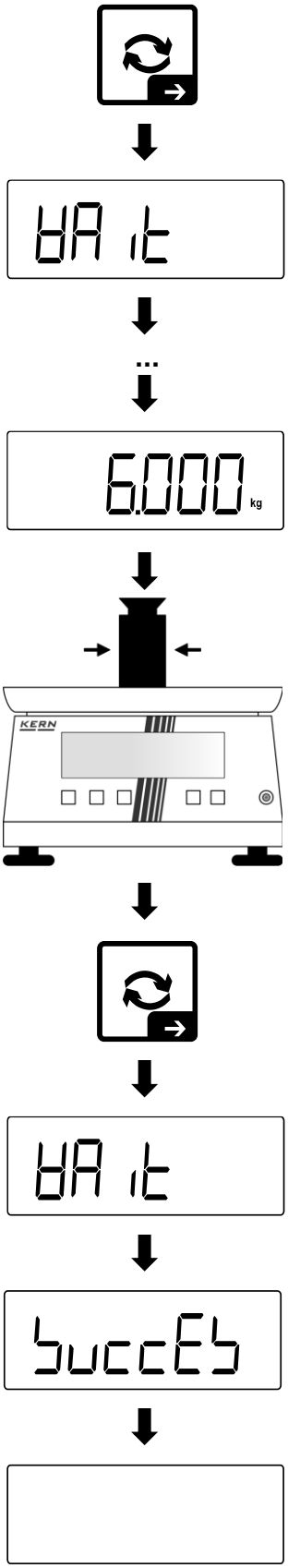
⇨ Scale displays <WAit>→ <ZEro>→ <PutLd> one after the other

...

⇨ Scale changes to display half the maximum load (in this example max. = 6 kg→ ½-max. = 3 kg)



⇨ Place the calibration weight in the centre of the weighing plate



⇨ Press **[➔]**

⇨ Scale performs ½-max linearisation

⇨ Scale displays <WAit>→ <PutLd> one after the other

⇨ Scale switches to displaying the maximum load

⇨ Place the calibration weight in the centre of the weighing plate

⇨ Press **[➔]**

⇨ Scale performs max linearisation

⇨ Scale displays <WAit>→ <SUCCES> one after the other

⇨ Scale display switches off

6.5.2 Linearisation with two weighing ranges

INFORMATION

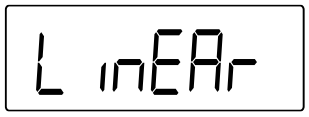
Carry out user-defined 2-point linearisation and adjustment as close as possible to the maximum load of the scale.

These descriptions apply to the following weighing range settings:
<PArAMS>→ <rAnGES>→ **<2>**

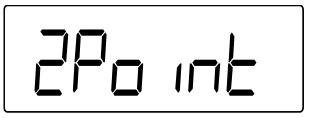
Example of 2-point linearisation:

⇨ Navigate to **<AdJuSt>** with **[↑]** or **[↓]**

⇨ Press **[➔]**

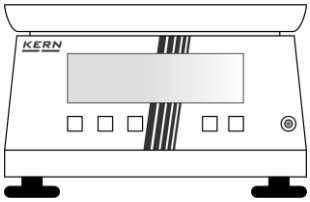


⇨ Select <L inEAr>



⇨ Select the number of linearisation points:

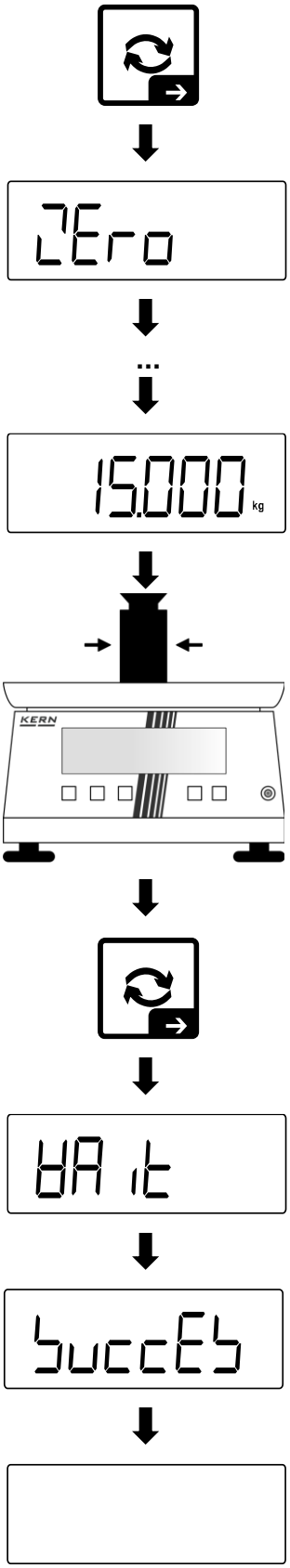
2Po int	2-points (0, user-defined value)
3Po int	3 points (0, max. 1, max. 2)
5Po int	5 points (0, ¼ Max 2nd, ½ Max 2nd, ¾ Max 2nd, Max 2nd)



⇨ Unload the scales / load receptor

⇨ Press **[➔]** to confirm the setting

⇨ Enter user-defined load (for numerical input, see chapter 3.1)



⇨ Press **[➔]**

⇨ The zero point is determined first

⇨ Scale displays <ZEro>→ <PutLd> one after the other

⇨ Scale switches to the display of the user-defined load

⇨ Place the calibration weight in the centre of the weighing plate

⇨ Press **[➔]**

⇨ Scale performs linearisation

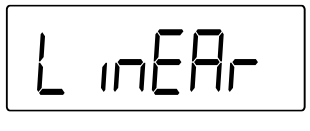
⇨ Scale displays <WAit>→ <SUCCES> one after the other

⇨ Scale display switches off

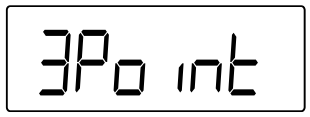
Example of 3-point linearisation:

⇨ Navigate to <AdJuSt> with [🡅] or [🡇]

⇨ Press [➔]

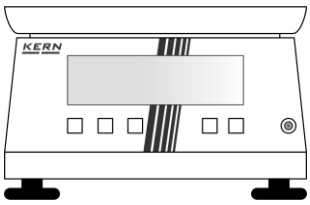


⇨ Select <L inEAr>



⇨ Select the number of linearisation points:

2Po int	2-points (0, user-defined value)
3Po int	3 points (0, max. 1, max. 2)
5Po int	5 points (0, ¼ Max. 2, ½ Max. 2, ¾ Max. 2, Max. 2)



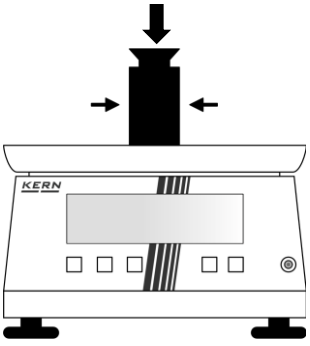
⇨ Unload the scales / load receptor

⇨ Press [➔]

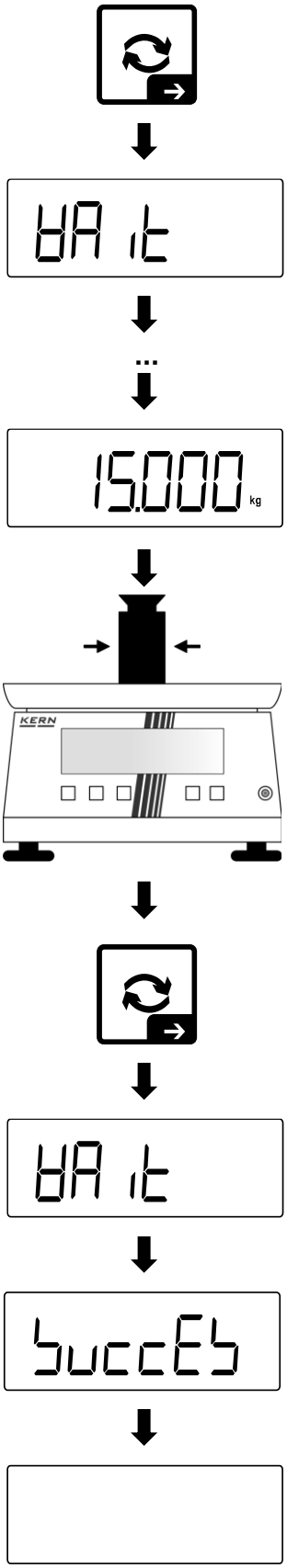
⇨ The zero point is determined first

⇨ Scale displays <WAit>→ <ZEro>→ <PutLd> one after the other

⇨ Scale switches to display of maximum load 1 (in this example max. 1 = 6 kg)



⇨ Place the calibration weight in the centre of the weighing plate



⇨ Press **[➔]**

⇨ Scale performs ½-max linearisation

⇨ Scale displays <WAit>→ <PutLd> one after the other

⇨ Scale switches to display of maximum load 2 (in this example max. 2 = 15 kg)

⇨ Place the calibration weight in the centre of the weighing plate

⇨ Press **[➔]**

⇨ Scale performs max linearisation

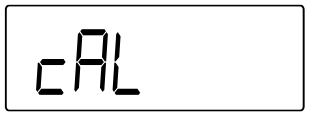
⇨ Scale displays <WAit>→ <SUCCES> one after the other

⇨ Scale display switches off

6.5.3 Carry out adjustment

⇨ Navigate to <AdJuSt> with [↑] or [↓]

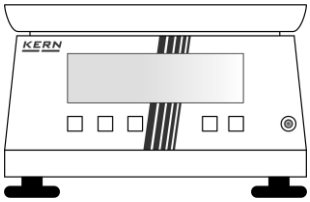
⇨ Press [➔]



⇨ Select <cAL>

⇨ Select <cALEHt>

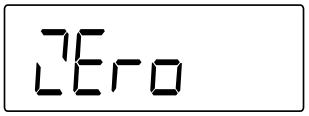
⇨ Unload the scales / load receptor



⇨ The calibration weight to be applied is displayed

⇨ Prepare the calibration weight (do not place it on the weighing pan yet)

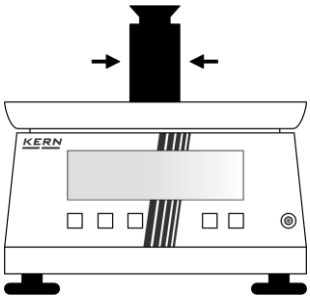
⇨ Press [➔]



⇨ First, the zero point is determined

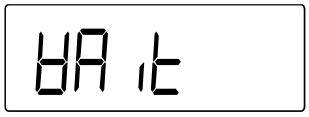
⇨ Scale displays <ZEro> → <PutLd> one after the other

⇨ Scale changes to display the calibration weight

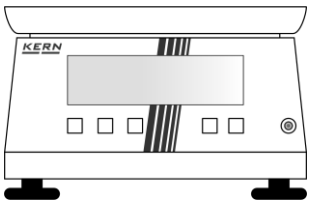


⇨ Place the calibration weight in the centre of the weighing plate

⇨ Press **[➔]**



⇨ Wait until **<rENULd>** appears on the display



⇨ Unload the scales / load receptor

⇨ Scale switches to weighing mode

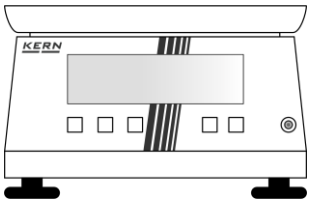
6.5.4 Perform adjustment with user-defined adjustment weight

⇨ Navigate to <AdJuSt> with [🡅] or [🡇]

⇨ Press [➔]

⇨ Select <CAL>

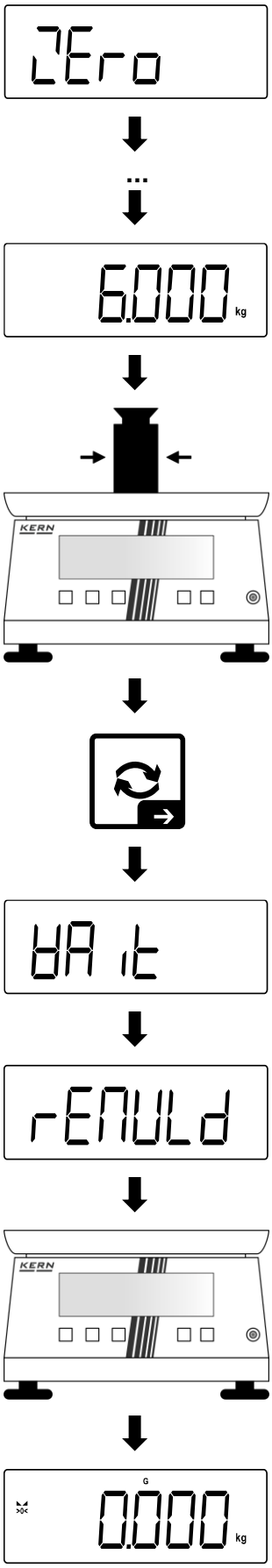
⇨ Select <CALEud>



⇨ Unload the scales / load receptor

⇨ Enter the calibration weight (for numerical input, see chapter 3.1)

⇨ Press [➔]



⇨ The zero point is determined first

⇨ Scale displays <ZEro>→ <PutLd> one after the other

⇨ Scale changes to display the calibration weight

⇨ Place the calibration weight in the centre of the weighing plate

⇨ Press **[➔]**

⇨ Wait until **<rENULd>** appears on the display

⇨ Unload the scales / load receptor

⇨ Scale switches to weighing mode

6.5.5 Setting gravitational constants

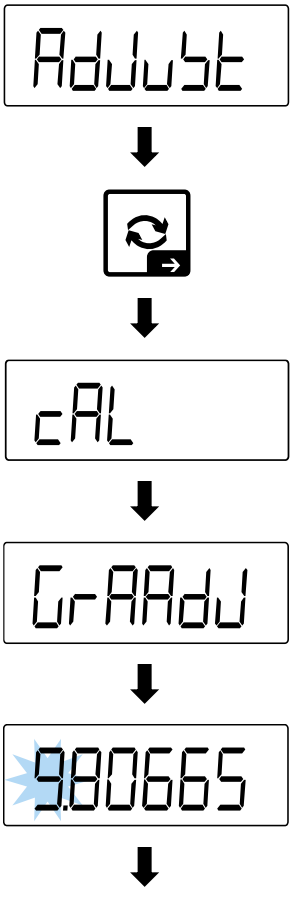
INFORMATION

- Only enter the gravitational constants after adjustment and linearisation. The two constants must be known for this.
- The two gravitational constants **<GrAAdJ>** and <GrAuSE> are reset to the default value after readjustment.

After setting the gravitational constants, the weight value is converted and displayed in weighing mode according to the set values.

Set the gravitational constant at the adjustment point:

The calibration location is the location where the scale is calibrated and linearised during configuration. Before setting, find out which value of the constant is valid for you at the place of adjustment and linearisation.



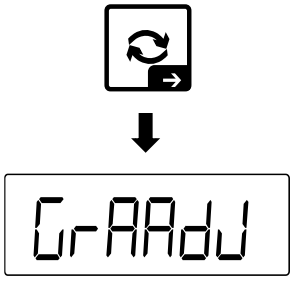
⇨ Navigate to **<AdJuSt>** with **[↑]** or **[↓]**

⇨ Press **[➔]**

⇨ Select **<cAL>**

⇨ Select **<GrAAdJ>**

⇨ Enter the gravitational constant of the adjustment location (for numerical input, see chapter 3.1)

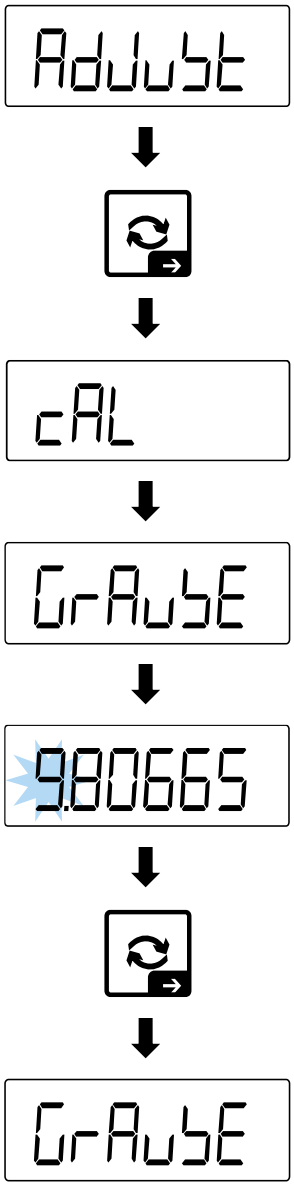


⇨ Press **[➔]**

⇨ Scale switches back to the menu

Set the gravitational constant at the installation site:

The installation location is the place where the scales will be used. This enables accurate measurements. Find out which value of the constant is valid for the user before setting the scale.



⇨ Navigate to <AdJuSt> with **[🡅]** or **[🡇]**

⇨ Press **[➔]**

⇨ Select <cAL>

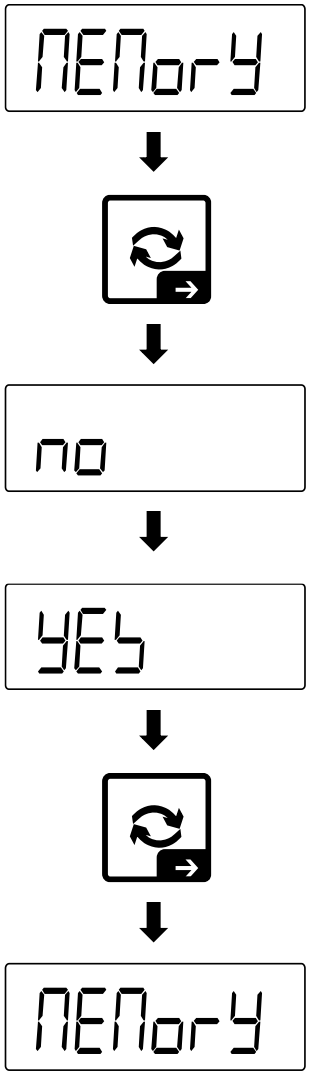
⇨ Select **<GrAuSE>**

⇨ Enter the gravitational constant of the installation location (for numerical input, see chapter 3.1)

⇨ Press **[➔]**

⇨ Scale switches back to the menu

6.6 Initialise alibi memory



⇨ Navigate to <MEMory> with [↑] or [↓]

⇨ Press [➔]

⇨ <YES> select

⇨ Press [➔]

⇨ Alibi memory is initialised

⇨ Scale switches back to the menu

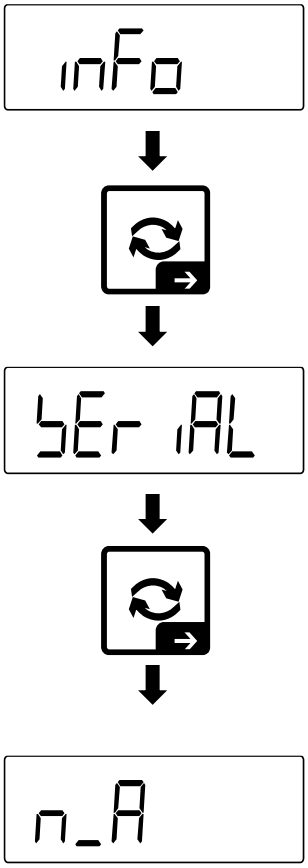
6.7 Display number of overloads

In the <oVErLd> menu, you can see how often the scale has been overloaded with regard to the configured maximum load.

6.8 Display device information

6.8.1 Display serial number

The serial number can only be set via KCP. Information on KCP can be found on the KERN homepage: www.kern-sohn.com



⇨ Navigate to **<** inFo**>** with **[🡅]** or **[🡇]**

⇨ Press **[➔]**

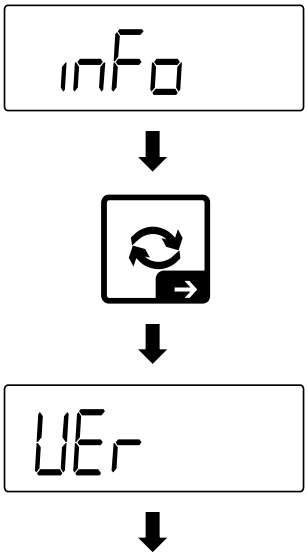
⇨ Select **<**bEr iAL**>**

⇨ Press **[➔]**

⇨ The scale switches to displaying the serial number (no serial number is set on delivery)

⇨ After 3 seconds, the display switches back to **<**bEr iAL**>**

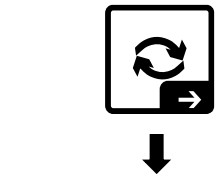
6.8.2 Display software version



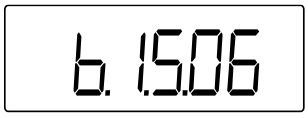
⇨ Navigate to **<** inFo**>** with **[🡅]** or **[🡇]**

⇨ Press **[➔]**

⇨ Select **<**UEr**>**



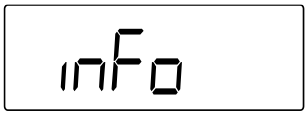
⇨ Press **[➔]**



⇨ Scale changes to display the software version

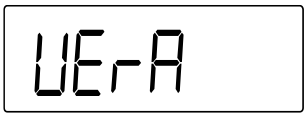
⇨ After 3 seconds, the display switches back to **<UEr>**

6.8.3 Display software version for calibratable devices



⇨ Navigate to **<** inFo**>** with **[🡅**] or **[🡇]**

⇨ Press **[➔]**



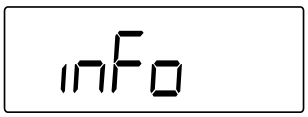
⇨ Select **<**UEr A**>**

⇨ Press **[➔]**

⇨ Scale changes to display the software version

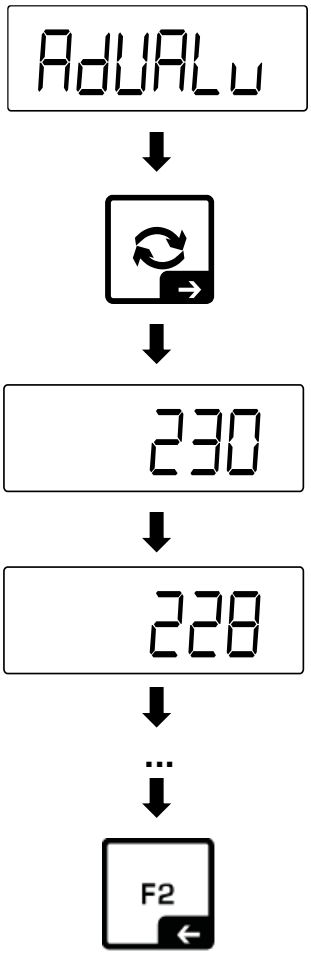
⇨ After 3 seconds, the display switches back to **<vera>**

6.8.4 Display the value of the A/D converter



⇨ Navigate to **<** inFo**>** with **[🡅**] or **[🡇]**

⇨ Press **[➔]**



⇨ Select <AdUALu>

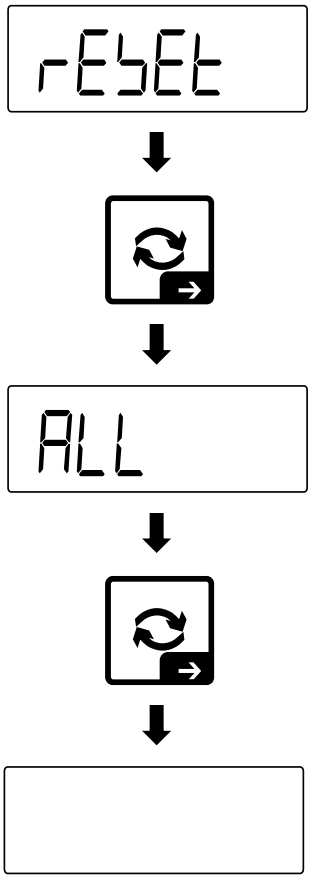
⇨ Press [➔]

⇨ Scale changes to display the current value of the A/D converter (dynamic display)

⇨ Press [🡐] to return to the menu

6.9 Restore factory settings

Restoring the factory settings resets the entire scale. All settings in the service menu and in the operating menus are reset.



⇨ Use **[↑]** or **[↓]** to navigate to **<rESEt>.**

⇨ Press **[➔]**

⇨ Scale switches to the display of **<ALL>**

⇨ Press **[➔]**

⇨ Scale is reset to factory settings

⇨ Scales switch off

7 Menu

- Further menus and settings (e.g. application menu, setup menu) are described in the operating instructions for the display unit.
- Only the first 3 menu levels are listed in the menu overview. Further levels are described in the respective operating steps.

Level 1	Level 2	Level 3	Description of the
H iD			Setting the increased resolution (only displayed if <PArAMS>→ < UEr - iFd>→ <on> and then the adjustment switch is pressed again)
	on		Increased resolution activated
	oFF		Increased resolution deactivated
AdJuSt			Linearisation and adjustment
	cAL		Adjustment settings
		cALEHt	External adjustment
		cALEud	Adjustment with user-defined weight
		GrAAdJ	Gravitational constant at the adjustment point (standard: 9.90665)
		GrAuSE	Gravitational constant at the installation site (standard: 9.90665)
	L inEAr		Linearisation settings
		2Po int	2-point linearisation
		3Po int	3-point linearisation
		5Po int	5-point linearisation
	ZEro		**Not documented**
	crEEP		**Without function**

Level 1	Level 2	Level 3	Description of the
PArAMS			Weighing parameters
	UEr .Fd		Settings for calibration capability
		on	Activate calibration capability
		oFF	Deactivate calibration capability
	rAnGES		Weighing range setting
		1	1 Weighing range
		2	2 weighing ranges
	un .t		Basic unit
	dEc .		Number of decimal places
	MAH		Maximum load
	MAH 1		Maximum load of the 1st weighing range (with 2 weighing ranges)
	MAH2		Maximum load of the 2nd weighing range (with 2 weighing ranges)
	d		Readability (corresponds to calibration value for calibratable devices)
	d 1		Readability 1st weighing range (with 2 weighing ranges)
	d2		Readability 2nd weighing range (with 2 weighing ranges)
oUErL			Information on the number of overloads
	MEn		Display of the number of overloads
	oUEr		**Without function**

Level 1	Level 2	Level 3	Description of the
MEMorY			Alibi memory setting
	YES		Initialise memory
	no		Do not initialise memory
inFo			Device information
	SEr iAL		Display serial number
	VEr		Show software version
	VErA		Display software version for calibratable devices
	AdVALu		Display the value of the A/D converter
rESEt			Reset user entries
	ALL		Confirm reset

8 Waste disposal

Old appliances and accessories should not be disposed of with household waste.

The operator must dispose of the packaging and appliance in accordance with the applicable national or regional legislation at the place of use.

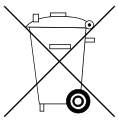
The device consists of various components and materials, such as

- Electronic components (circuit boards, electrical cables)
- Plastic (e.g. housing parts, covers, ...)
- Metal (e.g. housing parts, screws, ...)

Improper disposal of the appliance can have harmful effects on people and the environment.

Proper and environmentally friendly disposal can prevent harmful effects and recover raw materials.

Disposal of rechargeable batteries and batteries:



Rechargeable batteries and batteries do not belong in household waste.

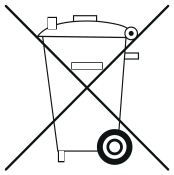
The disposal of rechargeable batteries and batteries must be carried out by the operator in accordance with the applicable national or regional law of the place of use.

INFORMATION

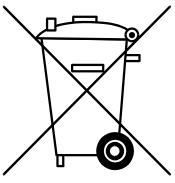
The following information is valid for Germany.

In connection with the sale of batteries and rechargeable batteries, we are obliged as a dealer under the Battery Act to inform end users of the following:

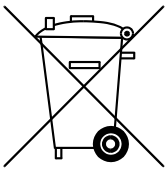
- End users are legally obliged to return used batteries and rechargeable batteries.
- After use, batteries and rechargeable batteries can be returned free of charge to municipal collection centres or retailers. The batteries/rechargeable batteries must have reached the end of their normal service life, otherwise precautions must be taken against short circuits.
- The return option is limited to batteries and rechargeable batteries of the type that we carry or have carried in our range and to the quantity that end consumers usually dispose of.
- A crossed-out wheelie bin means that you must not dispose of batteries or rechargeable batteries in household waste. Old batteries or rechargeable batteries may contain harmful substances that can damage people and the environment if not disposed of correctly.



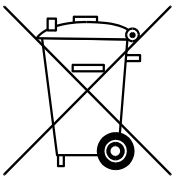
- Batteries containing harmful substances are labelled with a symbol consisting of a crossed-out dustbin and the chemical symbol (Cd = cadmium, Hg = mercury, or Pb = lead) of the heavy metal that is decisive for the classification as containing harmful substances.



Cd



Hg



Pb

9 Errors and faults

9.1 Error messages

Error message	Explanation
2Eroh ı	Zero setting range exceeded at start
2EroLo	Zero setting range undershot at start
2L ıN ıt	Zero setting range exceeded during operation
undEr2	Zero setting range undershot during operation
unstAbLE	Load unstable
L___J	Overload
r---7	Underload
HronG	Error during linearisation or adjustment
LobAt	Battery / rechargeable battery almost empty
SEtrtc	• Real-time clock faulty or not set • Button cell missing or discharged
NunAU	Memory faulty or not recognised
no232	No interface for data output available / selected

9.2 Malfunctions

Malfunction	Possible cause
Display does not light up / does not switch on	• Scale is not switched on • Mains plug is not plugged in or is defective • Mains voltage has failed • Battery is empty • Connection between battery / SMPS board and circuit board faulty
Display is incomplete / segments are partially missing	• LCD connection is faulty • LCD is defective
Zero setting ranges exceeded or undershot at start (<ZEroH ı> / <ZEroLo>)	• Load cell cable is not connected correctly
Values on the display change constantly or <instab>	• Weighing plate has contact with foreign objects • Load cells or display unit connection faulty • Vibrations of the table / floor • Draught / air movement • Electromagnetic fields/static charging (choose a different installation location/switch off the interfering device if possible)
Display values are not correct	• Adjustment or linearisation is not correct • <GrAdJ> or <GrAuSE> in use • Scales are not set to zero • Scales are not level • Strong temperature fluctuations in the environment • Warm-up time not observed (see weighing platform / weighing bridge documentation) • Electromagnetic fields/static charging (choose a different installation location/switch off the interfering device if possible)
Display is permanently set to zero	• Analogue-digital converter faulty or defective • Linearisation is not correct
The entire weighing range cannot be utilised / display shows overload too early	• Apply standard weighing plate • Problem with load cell or overload protection
Buttons do not work	• Keyboard not correctly connected to the circuit board • Keyboard defective.
Interface does not work	• Internal interface module not installed correctly or defective • Connection cable not connected correctly or defective
Alibi memory does not work	• Alibi memory not initialised • Alibi memory module defective

A1 Declaration of Conformity

INFORMATION

- Other languages of the current EC/EU Declaration of Conformity can be found online at: **www.kern-sohn.com/ce**
- For verified scales (= conformity-assessed scales), the conformity assessment is included in the scope of delivery.