

User manual Electronic Crane Scale

Logbook Periodic maintenance and service

KERN HCD

Version 1.4
2022-02
GB



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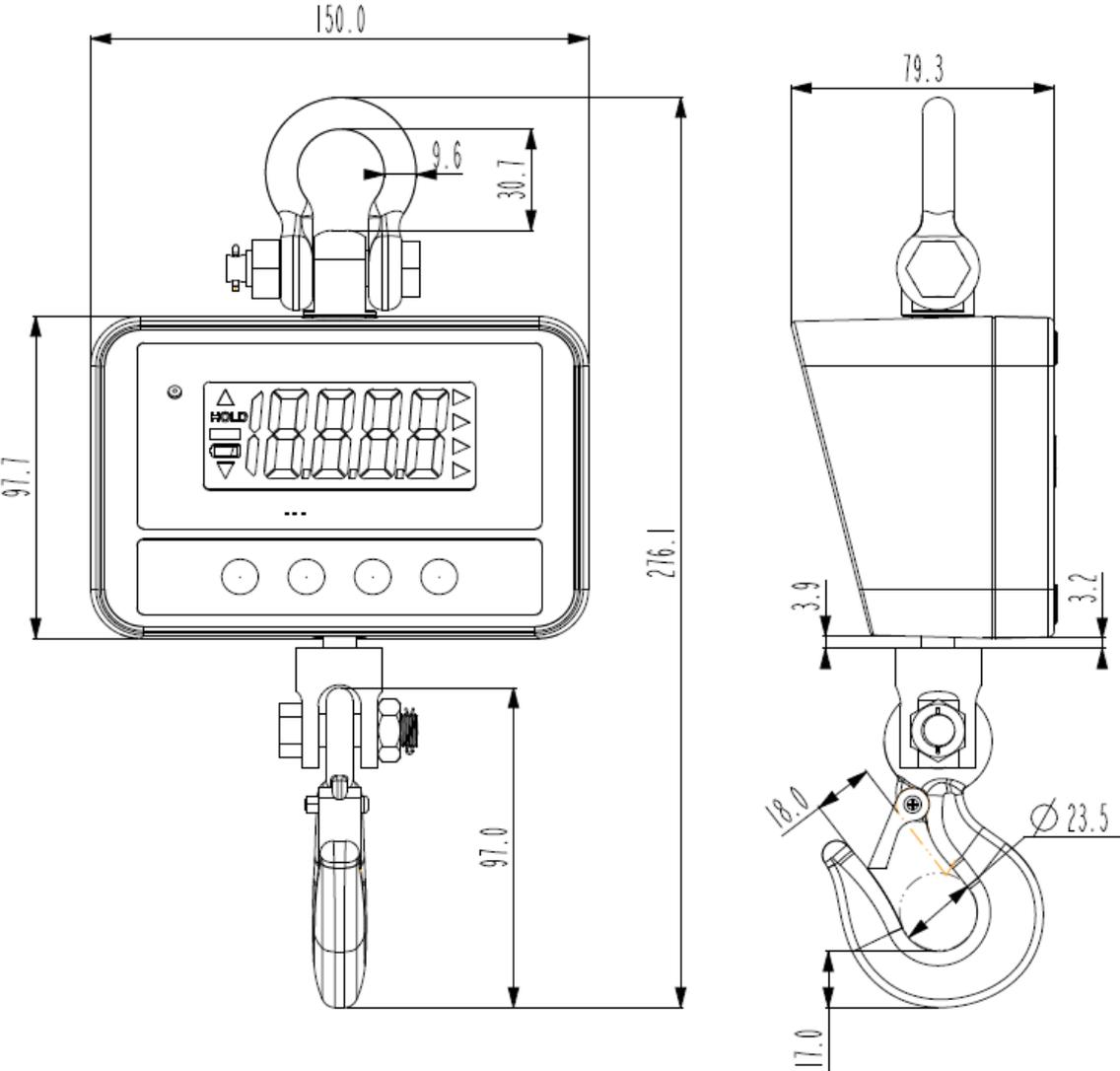
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1. Technical specification

KERN	HCD 60K-2	HCD 100K-2	HCD 300K-1
Product number / type	THCD 60K-2-A	THCD 100K-2-A	THCD 300K-1-A
Interval (<i>d</i>)	0.02 kg	0.05 kg	0.1 kg
Weighing range (<i>Max</i>)	60 kg	150 kg	300 kg
Tare range (subtractive)	60 kg	150 kg	300 kg
Reproducibility	0.02 kg	0.05 kg	0.1 kg
Linearity	±0,04 kg	±0,1 kg	±0,2 kg
Recommended adjustment weight (class), not delivered	50 kg (M1)	100 kg (M1)	200 kg (M1)
Settling time	2 s		
Accuracy	0.2% of the <i>Max</i> value		
Heating time	10 min		
Units	kg, lb, N		
Permissible ambient temperature	+5 to +40°C		
Relative humidity	From 0 to 80%, non-condensing		
Batteries (standard)	4 x 1.5 V, type AA batteries operating time – illumination on: 37 h operating time – illumination off: 100 h		
Rechargeable battery	optional		
Input voltage of the device	9 V, 300 mA		
Input voltage of the power supply	100–240 VAC; 50/60 Hz		
Display	Digit height 28 mm		
Display housing dimensions (W x D x H) [mm]	150 x 79 x 97		
Housing material	plastic		
Hook material	Lacquered steel		
Net weight [kg]	0.85		
Remote control (series component) wireless	1 x 3 V, type CR2025 battery		

KERN	HCD 100K-2D	HCD 300K-2D
Product number / type	THCD 100K-2D-A	THCD 300K-2D-A
Interval (<i>d</i>)	0.02 kg/0.05 kg	0.05 kg/0.1 kg
Weighing range (<i>Max</i>)	60 kg/150 kg	150 kg/300 kg
Tare range (subtractive)	60 kg/150 kg	150 kg/300 kg
Reproducibility	0.02 kg/0.05 kg	0.05 kg/0.1 kg
Linearity	±0.04 kg; 0.1 kg	±0.1 kg; 0.2 kg
Recommended adjustment weight (class), not delivered	100 kg (M1)	200 kg (M1)
Settling time	2 s	
Accuracy	0.2% of the <i>Max</i> value	
Heating time	10 min	
Units	kg, lb, N	
Permissible ambient temperature	+5 to +40°C	
Relative humidity	From 0 to 80%, non-condensing	
Batteries (standard)	4 x 1.5 V, type AA batteries operating time – illumination on: 37 h operating time – illumination off: 100 h	
Battery	optional	
Input voltage of the device	9 V, 300 mA	
Input voltage of the power supply	100–240 VAC; 50/60 Hz	
Display	Digit height 28 mm	
Display housing dimensions (W x D x H) [mm]	150 x 79 x 97	
Housing material	plastic	
Hook material	Lacquered steel	
Net weight [kg]	0.85	
Remote control (series component) wireless	1 x 3 V, type CR2025 battery	

1.1 Dimensions [mm]



1.2 Nameplate



1	KERN logo
2	Model name
3	Weighing range [<i>Max</i>], interval [<i>d</i>]
4	Power supply parameters
5	Product number
6	Serial number
7	Date of manufacture
8	Recycling symbol
9	Company address

1.3 Declaration of Conformity



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EU-Konformitätserklärung | EU Declaration of Conformity

DE Wir erklären hiermit unter alleiniger Verantwortung, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Richtlinien übereinstimmt. Das Produkt erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union.

EN We hereby declare and assume sole responsibility for the declaration that the product complies with the directives hereinafter. The object of the declaration described below is in conformity with the relevant Union harmonisation legislation.

Modell Model	Typ Type	Seriennr. Serial no.
HCD 100K-2, HCD 100K-2D, HCD 300K-1, HCD 300K-2D, HCD 60K-2	HCD	XXXXXXXXXX

CE Kennzeichnung Mark applied	EU-Richtlinie EU directive	Normen Standards
	2006/42/EC <i>(MD)</i>	EN 13155:2003+ A2:2009
	2011/65/EU <i>(RoHS)</i>	EN 63000:2018
	2014/30/EU <i>(EMC)</i>	EN 61326-1:2013 EN 61326-2-2:2013

Dataum | Date | : 24 February 2022

Ort der Ausstellung: 72336 Balingen,
Place of issue: Germany

Albert Sauter
KERN & Sohn GmbH

Signatur: Geschäftsführer
Signature: Managing director

Other languages available online at:

www.kern-sohn.com/ce

2. General safety instructions

User obligations

It is necessary to follow the national OH&S regulations as well as operating, user and safety instructions in force in the user's location.

- Follow all the safety instructions of the crane (overhead crane) manufacturer.
- Always use the scale in line with its intended use. Every use type not listed in this user manual is deemed to be the use other than the intended one. The owner, and not KERN & Sohn, shall be the only party liable for any property damage and injuries resulting from such non-intended use.
KERN & Sohn shall not be held liable for any unauthorised modifications or non-intended use of the crane scale and any resulting damage and losses.
- The crane scale, the crane (overhead crane) and the hoisting equipment shall be maintained periodically and kept in a good technical condition (see chapter 8).
- The inspection result should be recorded and kept in the logbook.

Organisational measures

- The device should be operated solely by trained and instructed people.
- Ensure constant access to the user manual in the crane scale operation location.
- The installation, startup and maintenance should always be carried out by the trained specialists.
- Always use the original spare parts.
- All the repairs must be carried out solely by trained specialists. Repairs and spare parts must be documented. (See the "Spare parts and repairs of components important for safety" list).
- All the effects should be documented (see the "Periodic maintenance" checklist in chapter 8.3).
- The load-bearing structural components must be replaced as a complete spare part assembly. The dimensions of new structural components must be recorded (see the "Periodic maintenance" checklist in chapter 8.3).

Ambient conditions

- Never operate the crane scale in explosive atmospheres. The standard version is not explosion-proof.
- The crane scale should always be used in ambient conditions described in this user manual (in particular in chapter 1 “Technical Specification”).
- Do not expose the crane scale to heavy moisture. Any forbidden condensation of the air moisture on the device may occur when a cold device is placed in a much hotter environment. In such circumstances, leave the device not connected to the mains for 2 hours to adapt to the ambient temperature.
- Do not use the crane scale in any corrosive environment.
- Protect the crane scale from high humidity of air, vapours, liquids and dust.
- Avoid extreme temperatures and temperature fluctuations resulting e.g. from direct solar radiation.
- If there are any electromagnetic fields (caused e.g. by mobile phones or radio devices), static discharge and unstable power supply, high readout deviations (erroneous weighing results) may occur. Relocate the unit or remove the source of interference.

Intended use

The scale you bought is intended for weighing the weighed material. It should be deemed to be a “non-automatic one”, where the material to be weighed should be manually hung on the crane (overhead crane) hook vertically, carefully and “smoothly”. The weight can be read after it has stabilized.

- The crane scale should always be used to lift and weigh loads which move freely.
- Any non-intended use brings about the injury hazard. It is prohibited e.g. to:
 - Exceed the permissible rated load of the crane (overhead crane), crane scale or any components used to hoist the load;
 - Carry people;
 - Pull the loads diagonally;
 - Remove the loads by force, pull them out or drag them.
- It is prohibited to modify or alter the crane scale or the crane (overhead crane).

Intended use of the rotary hook

- The rotary hook enables to hang the weighed material easily and comfortably.
- The hook rotation is not active once the load is suspended. The load suspended on the crane scale must not rotate. The rotation must be effected using the rotary hook. Generally speaking, the loaded crane scale must not rotate. (Static load suspension and removal).

Non-intended use

Do not use the scale for dynamic weighing. If the amount of the weighed material is reduced or increased significantly, the scale's "stabilizing and compensating" mechanism can result in displaying erroneous weighing results! (Example: slow outflow of the liquid from the container suspended on the scale.) Do not subject the scale to long-term load. It may damage the weighing mechanism and also components important for safety reasons.

The scale should always be operated in line with the provided guidelines. Other operation ranges / areas require a written consent of KERN.

Guarantee

The warranty expires:

- if you fail to follow our guidelines included in the user manual;
- if you fail to use the device in line with the intended use;
- if you introduce any modifications or open the device;
- if the device gets damaged mechanically or damaged by the utilities, liquids;
- if there is any ordinary wear and tear;
- if the device is not set correctly or the electrical system is not as required;
- if the weighing mechanism gets overloaded.

Operation in line with the safety rules

- Do not stay under suspended loads.
- Always position the crane (overhead crane) to ensure the load is lifted upright.
- When operating the crane (overhead crane) and crane scale, always use personal protection equipment (hard hat, protective footwear etc.).

Testing equipment supervision

Within the quality assurance system, you must check the technical measurement properties of the scale and possibly of the available reference weight regularly. To that aim, the responsible user should define a relevant cycle, as well as the type and scope of such an inspection. The information on the supervision of the testing equipment, i.e. scales, and the required reference weights, can be found on the home page of KERN (www.kern-sohn.com). The reference weights and scales can be calibrated fast and at a low cost in the KERN calibration laboratory (against the national reference) approved by DKD (Deutsche Kalibrierdienst).

Checking during reception

Immediately after you have received the shipment, please check if it is free from any visible damage. The same applies for the unpacked device.

First start

To get accurate weighing results using electronic scales, ensure the scales achieves the appropriate operating temperature (see “Heating time”, chapter 1).

During heating, the scale must be connected to the power source (rechargeable battery or battery).

The scale accuracy depends on the local standard gravity.

Always follow the guidelines in the “Adjustment” chapter.

For the original dimension check, see chapter 4.2.

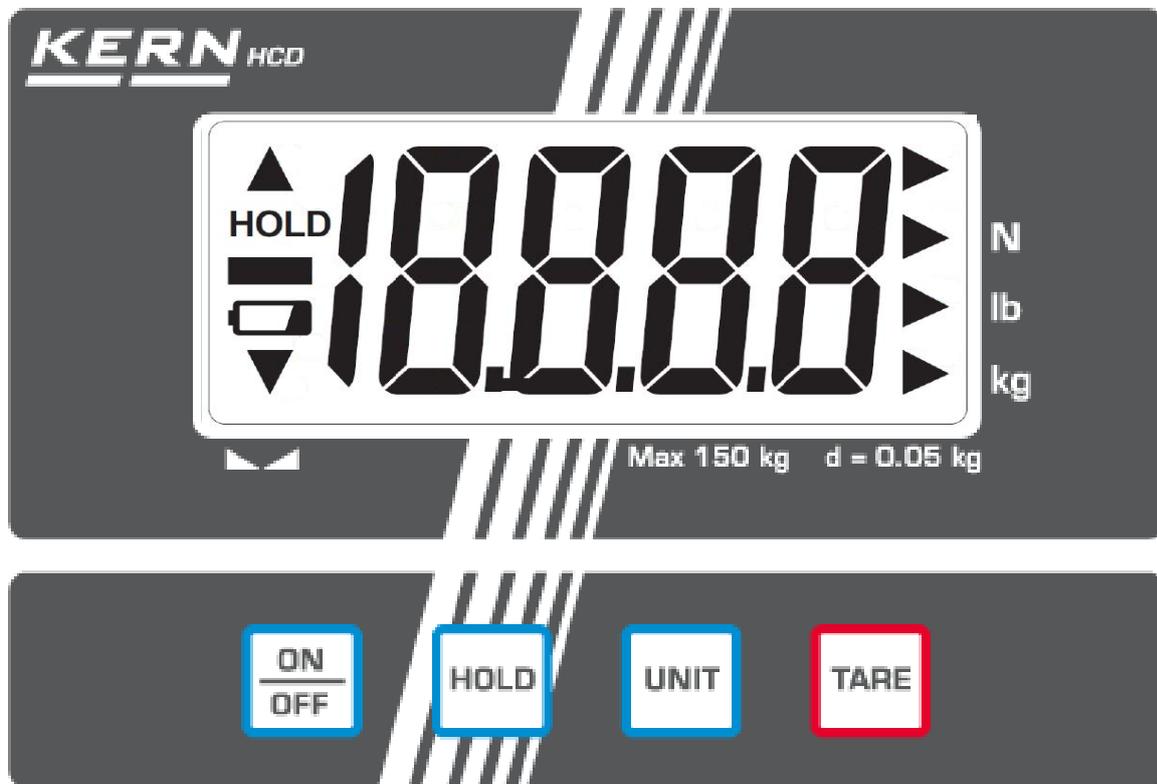
Decommissioning and storage

- Remove the crane scale from the crane (overhead crane) and remove any hoisting equipment.
- Do not store the crane scale outdoors.

3. About the crane scale

The crane scale is a universal and economical solution used wherever weighing takes place overhead, e.g. in recycling, metal processing, machine engineering, transport and logistics.

The remote control makes the operation even more comfortable.



Indication overview

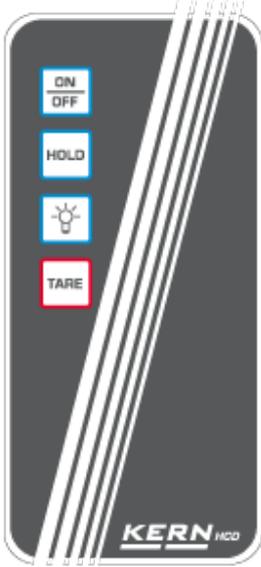
▶ kg	The current weight unit is a kilogram.	
▶ lb	The current weight unit is a pound.	
▶ N	The current weight unit is a newton.	
▲	It means the weighing value depending on the active setting H1–H6.	
	H1–H4:	“Data Hold” function
	H5	Animal weighing function
	H6	Peak value function
	Discharged batteries	
HOLD	“Data Hold” function enabled	

Keyboard overview:

Button	Function description
	<ul style="list-style-type: none"> Switching the scale on and off
	<ul style="list-style-type: none"> Weight blocking (freezing)
	<ul style="list-style-type: none"> Weight unit switching (kg → lb → N)
	<ul style="list-style-type: none"> Zeroing Zeroing

3.1 Remote control

The remote control enables to operate the scale the same as it is done using the keyboard.

		<ul style="list-style-type: none"> Switching the scale on and off
		<ul style="list-style-type: none"> Weight blocking (freezing)
		<ul style="list-style-type: none"> Display backlight switched on for 30 s (<bl→on> menu setting)
		<ul style="list-style-type: none"> Zeroing Zeroing

3.2 Stickers



- ⇒ Do not stand and pass under suspended loads.
- ⇒ Do not use in the construction site.
- ⇒ Always watch the suspended load.



(example)

- ⇒ Do not exceed the permissible rated load of the crane (overhead crane), crane scale or any components used to hoist the load on the crane scale.



- ⇒ The product meets the requirements of the German Device and Product Safety Act.

4. Start

	+ Always follow the guidelines in chapter 2 “General safety instructions”.
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4.1 Unpacking

 SAFETY TIP concerning breaking protection	The delivered and unpacked crane scales must not be returned.
	The crane scale is sealed by KERN. ⇒ The shackle and the hook are sealed by means of adhesive tape. ⇒ It cannot be removed from the packaging without tampering with the adhesive tape seal. + The seal must not be tampered before buying.  Figure: Seal.
	Thank you for understanding. KERN Quality Assurance Team

Always use the original packaging for the return transport.

- ⇒ Ensure that all the available parts are here.
- Crane scale
 - Remote control
 - Batteries (4 x 1.5 V, type AA batteries)
 - User manual (logbook)

4.2 Original dimensions

- Before first use, check the dimensions and note them down on the checklist.
To do it, enter the dimensions in the “Periodic maintenance” checklist as per the drawings in chapter 8.3. For that purpose, use appropriate control measures.

4.3 Rechargeable battery operation

  	<p>PLEASE NOTE!</p> <ul style="list-style-type: none">⇒ The rechargeable battery and the charger are compatible. Always use the power supply delivered with the scale.⇒ Do not weigh during the loading process.⇒ The crane scale cannot be used without the rechargeable battery, just with the power supply.⇒ Always replace the battery with the one of the same type or of the type recommended by the manufacturer.⇒ The battery is not protected against all the environmental impacts. Exposing the battery to specific environmental conditions may result in its fire or explosion. It may result in serious injuries or material losses.⇒ Protect the battery from fire and heat.⇒ Do not allow the battery to have any contact with liquids, chemicals or salts.⇒ Do not expose the battery to high pressure or microwave radiation.⇒ Do not modify any batteries, charger and do not tamper them.⇒ Do not use any faulty, damaged or deformed battery.⇒ Do not connect the electrical contacts of the battery and do not use any metal items to short circuit them.⇒ The electrolyte may be released by the damaged battery. Any contact of the electrolyte with the skin or eyes may irritate them.⇒ If you detect any odor emitted by the battery, its heating, discoloration or deformation, disconnect it immediately from the power supply and, whenever possible, from the scale.
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The rechargeable battery should be charged:

Before first use, charge the rechargeable battery for 14 hours using the power cord. The rechargeable battery operating time is ca. 30 hours with the display backlight on and 100 hours without it.

The symbol  displayed means that the battery capacity will soon run down. When the battery is charged, the following is displayed:



If the crane scale is not used for a prolonged period of time, remove the rechargeable battery.

4.4 Battery operation

When the batteries are low, the battery symbol is displayed. After the battery is discharged, the battery symbol and "Lo" are displayed.

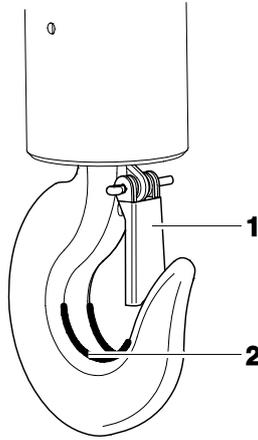
Press the **ON/OFF** button and replace the batteries.

Open the battery compartment, replace the batteries and close the compartment.

To save batteries, the scale is switched off automatically after 4 minutes of idleness. The "Auto-Off" function may be disabled in the menu.

If the crane scale is not used for a prolonged period of time, remove the batteries.

4.5 Scale hanging



Preliminary condition

The crane (overhead crane) hook must come with a safety catch (1) preventing the unloaded crane scale from falling.

If there is no safety catch or if it damaged, contact the crane (overhead crane) manufacturer to obtain a hook with the required safety device.



The crane scale may be used only with a crane (overhead crane) with an “articulated joint”.

⇒ Hang the crane scale on the lower hook of the crane (overhead crane) and close the safety catch.

The upper lug of the crane scale must be placed in the hook saddle (2).

5. Operation

5.1 Safety instructions

	 <p>Danger</p> <p>Danger of injuries from falling loads!</p>
  <p>(example)</p>	<ul style="list-style-type: none"> ⇒ Always work exercising the utmost care and in line with the general crane (overhead crane) operation principles. ⇒ Check all the components (hook, lug, rings, rope sling ropes, cables, chains etc.) for excessive wear or damage. ⇒ If you find any defect of the safety catch securing the hook or its absence, do not use the scale. ⇒ Operate the device with the appropriate speed. ⇒ Avoid any fluctuations and horizontal forces. Avoid any impact, twisting or swaying (e.g. as a result of slanting suspension). ⇒ Do not use the crane scale to transport loads. ⇒ Do not stand and pass under suspended loads. ⇒ Do not use in the construction site. ⇒ Always watch the suspended load. ⇒ Do not exceed the permissible rated load of the crane (overhead crane), crane scale or any components used to hoist the load on the crane scale. ⇒ When weighing hazardous substances (e.g. molten mass, radioactive materials), follow the regulations concerning hazardous substance handling!

5.2 Crane scale loading

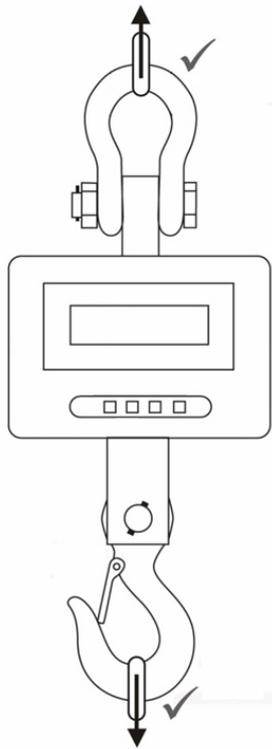
To achieve correct weighing results, follow the following instructions, see the figures on the following page:

- ⇒ Always use the components for load hoisting which ensure one-point free scale suspension.
- ⇒ Do not use too large hoisting equipment which does not ensure one-point suspension.
- ⇒ Do not use multiple slings.
- ⇒ Do not pull and move the load with the loaded scale.
- ⇒ Do not pull the hook horizontally.

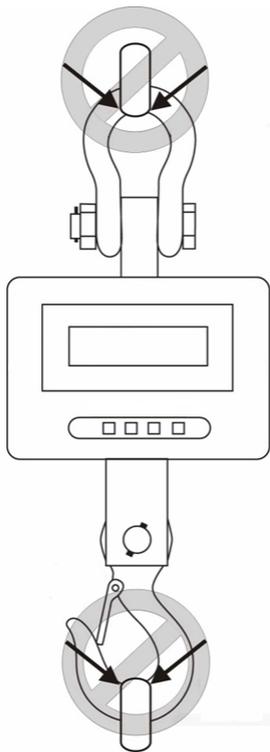
Scale loading

1. Place the crane scale hook above the load.
2. Lower the crane scale to enable load suspension on the scale hook. Once you reach the suitable height, reduce the speed.
3. Hang the load on the hook. Ensure that the safety catch is closed. When installing the load using rope slings, ensure that the slings are well positioned in the scale hook saddle.
4. Raise the load slowly.

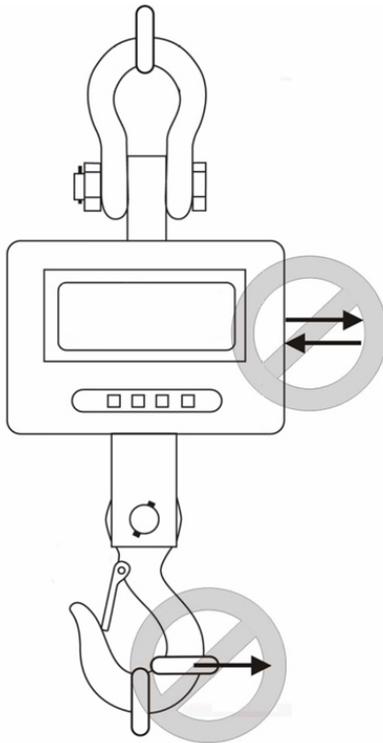
When installing the load using rope slings, ensure the load is balanced and the rope slings are positioned correctly.



Always use the components for load hoisting which ensure one-point free scale suspension.



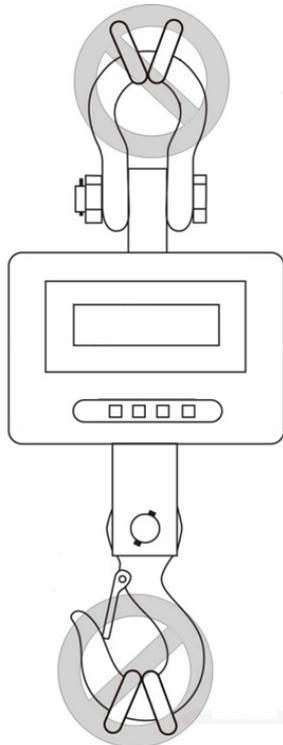
Do not use too large hoisting equipment which does not ensure one-point suspension.



Do not pull and move.



Do not pull the hook sideways.



Do not use multiple slings.

5.3 Switching on/off

Switching on

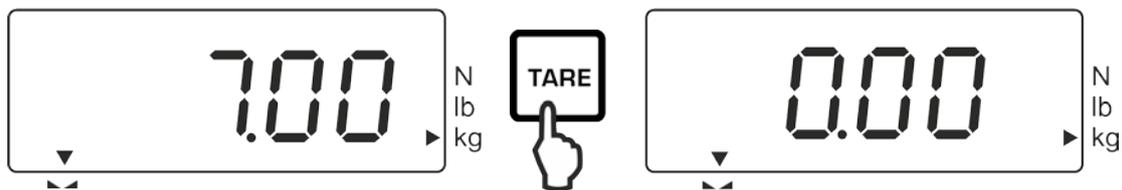
- ⇒ Press the **ON/OFF** button. Once the displays is lit, the scale autotest will be carried out. Wait until zero is displayed.

Switching off

- ⇒ Press the **ON/OFF** button.

5.4 Zeroing

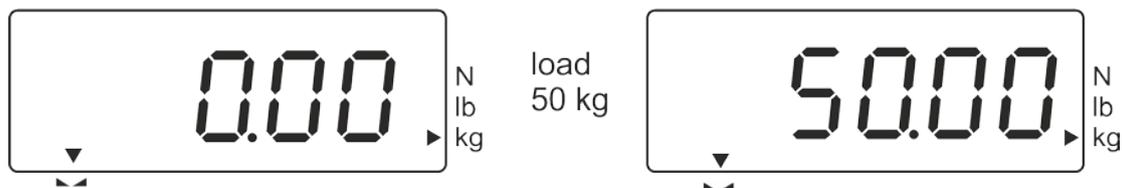
- ⇒ Hang the initial load.
Press **TARE** button and wait until zero is displayed. The container weight is saved in the scale memory.



- ⇒ Place the weighed material. The net weight will be displayed.
- ⇒ After you remove the initial load, its weight will be displayed as a negative result.
- ⇒ To delete the tare weight, remove the load from the crane scale and press **TARE**.

5.5 Weighing

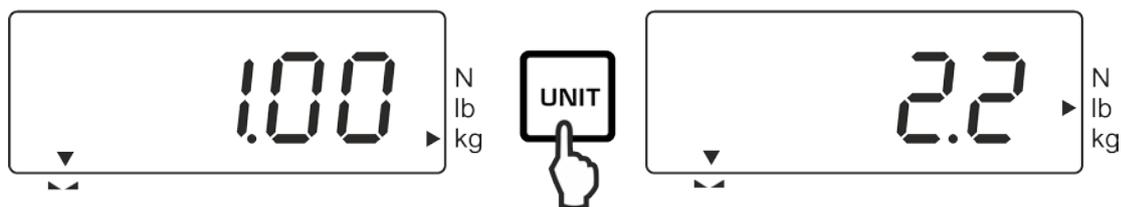
- ⇒ Load the crane scale.
- ⇒ Wait until the stabilization indicator is displayed.
- ⇒ Read out the weight value.



Overload warning

Avoid any scale overload higher than the stipulated maximum load (*Max*), deducting the tare from the existing load. This could damage the scale. The exceeded maximum load is indicated with “E”. Reduce the scale load or reduce the initial load.

5.6 Weight unit switching



Pressing the **UNIT** button results in displaying the subsequent weight unit, i.e. **kg** → **lb** → **N**.

► Indicates the active unit.

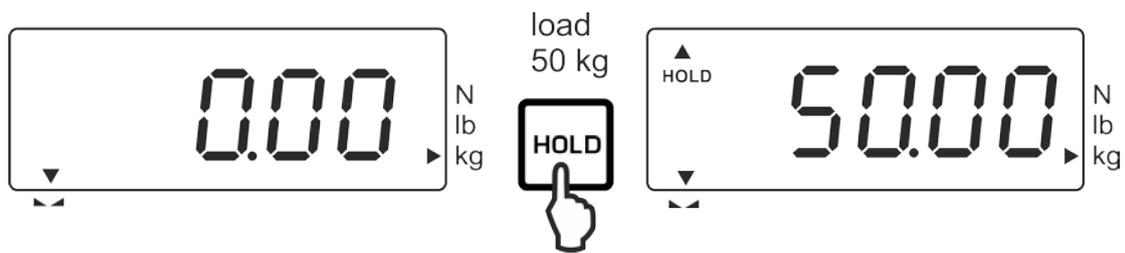
5.7 Functions

The **Hold** button enables to active the following functions:

Setting	Function	
H1	“Data Hold 1” function When you press the Hold button, the weighing value will be frozen for 5 s	+ see chapter 5.7.1
H2	“Data Hold 2” function When you press the Hold button, the weighing value will be frozen until you press any button	
H3	“Data Hold 3” function The weighing value will be frozen automatically for 5 s	
H4	Data Hold 4” function The weighing value will be frozen once it reaches the stable value until any button is pressed	
H5	Animal weighing function	+ see chapter 5.7.2
H6	Peak value function	+ see chapter 5.7.3

5.7.1 “Data Hold” function

- ⇒ Switch the scale on, press and hold the **HOLD** button until the current “Hx” is displayed (H1–H6).
- ⇒ Press the **ON/OFF** several times until the required setting “H1–H4” is displayed.
- ⇒ Confirm the setting selection, pressing the **HOLD** button.
- ⇒ Hang the weighed material.
- ⇒ The weighing value frozen according to the selected setting (H1–H4) will be displayed (see chapter 5.7) as indicated by [▲] displayed above the [HOLD] symbol to the left.



5.7.2 Animal weighing function

This function is designed for turbulent weighing procedures. The result is the mean value of 16 weighing values obtained during 3 seconds.

- ⇒ Switch the scale on, press and hold the **HOLD** button until the current “Hx” is displayed (H1–H6).
- ⇒ Press the **ON/OFF** button several times until the “H5” setting is displayed.
- ⇒ Confirm the setting selection, pressing the **HOLD** button.
- ⇒ Hang the weighed material.
- ⇒ Press the **HOLD** button and the display will count down from 3 to 1. The mean value will be displayed as indicated by [▲] above [HOLD] to the left.
- ⇒ To carry out subsequent weighing, press **TARE**.

5.7.3 Peak value function

This function enables to display the highest loading value (peak value) for one weighing.

Weighing frequency: 200 ms.

Please note:



The peak value must never overload the scale beyond the quoted maximum load (!!!Breaking hazard!!).

- ⇒ Switch the scale on, press and hold the **HOLD** button until the current “Hx” is displayed (H1–H6).
- ⇒ Press the **ON/OFF** button several times until the “**H6**” setting is displayed.
- ⇒ Confirm the setting selection, pressing the **HOLD** button.
- ⇒ Hang the weighed material.
- ⇒ The peak value will be displayed for a while as indicated by [▲] above [**HOLD**] to the left. The scale is zeroed again automatically and can be used for subsequent weighing.

6. Menu

- ⇒ When the scale is on, press and hold the **HOLD** button.
- ⇒ Do not release the **HOLD** button. Press and hold the **ON/OFF** button as well.
- ⇒ Press and hold the **ON/OFF** button, but release the **HOLD** one.
- ⇒ Press **HOLD** again.
- ⇒ Keep both buttons pressed until “tr” is displayed.
- ⇒ Release both buttons. The scale is in the menu mode.
- ⇒ The **ON/OFF** button enables to choose one of the below-mentioned functions:

Function	Available settings	Description
tr Zeroing	on	Automatic zero point adjustment
	off	
AF Automatic switch-off function	off 5 off 10 off 20 off 30	Automatic scale switch-off after the preset delay; you may choose from 5, 10, 20 and 30 minutes.
bL Display backlight	on	Backlight on
	off	Backlight off
	Ch	Automatic switch-off of the backlight 10 s after the stable weighing value is achieved.
rSt	YES	Resetting to factory settings
	NO	

- ⇒ Confirm the function selection, pressing the **HOLD** button.
- ⇒ The current setting, i.e. “**ON**” or “**OFF**” or “**YES**” or “**NO**” will be displayed. The **ON/OFF** button enables to choose between “**ON**” and “**OFF**” or “**YES**” and “**NO**”. Confirm your selection, pressing the **HOLD** button. After a while, the scale will be switched back to the weighing mode automatically.

7. Adjustment

- ⇒ Switch the scale off, whenever required hang the auxiliary holder.



- ⇒ Switch the scale on with the auxiliary holder hung.
Press and hold the **Unit** button (ca. 3 s) until the “**CAL**” symbol is displayed.



- ⇒ Wait until the weight value of the required adjustment weight is displayed (see chapter 1).



- ⇒ Hang the adjustment weight. After a while, “**F**” will be displayed.



- ⇒ After the adjustment is completed successfully, the scale will be switched off automatically.
If there is any adjustment error or if an incorrect adjustment weight is used, the error message is displayed. Repeat the adjustment process.

8. Maintenance, repair, cleaning and disposal

	Before you start any works related to the maintenance, cleaning and repair, disconnect the device from the operating voltage.
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 Danger	<p>There is the danger of injuries and property damage! The crane scale is a part of the lifting device! To ensure safe operation, follow the guidelines below:</p> <ul style="list-style-type: none">⇒ The periodic maintenance should be carried out by trained specialists, as stipulated in chapter 8.2 “Periodic maintenance and service” and the “Periodic maintenance” checklist.⇒ All the parts should be replaced by trained specialists.⇒ If you find any non-conformity when compared to the checklist, do not put the scale in service.⇒ Do not repair the crane scale yourself. Any repairs can be carried out solely by trained specialists.
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8.1 Cleaning and disposal

 CAUTION	<p>Crane scale damage!</p> <ul style="list-style-type: none">⇒ Do not use any industrial solvents or chemicals.
---	--

- ⇒ The keyboard and the display should be cleaned with a soft cloth with mild window-cleaning agent.
- ⇒ The packaging and the device should be disposed in accordance with the national or regional law in the location where the device is operated.

8.2 Periodic maintenance and service

- ▲ Periodic inspections and maintenance should be carried out as scheduled in chapter 8.6 “Inspection cycles”.
- ▲ Periodic maintenance every 3 months can be carried out solely by trained specialists possessing basic knowledge of the crane scale operation. It is necessary to follow the national OH&S regulations as well as operating, user and safety instructions in force in the user’s location.
- ▲ Always use validated control measures/feeler gauges for checking.
- ▲ Periodic maintenance every 12 months can be carried out solely by trained specialists.
- ▲ The results of periodic and extended maintenance should be entered in relevant checklists.
- ▲ The replaced parts should be entered in the “Spare parts and repairs” checklist.

Periodic maintenance:

<p>First start, every 3 months</p>	<ul style="list-style-type: none"> ▪ Entering and verification of all dimensions, see the “Checklist”, chapter 8.3. ▪ Check the scale and suspension components for wear, including e.g. plastic strain, mechanical damage (roughness), notches, grooves, cracks, corrosion, damaged threads and twists. ▪ Carry out the visual and functional inspection of the articulated joint. ▪ Check the safety catch of the hook, also for any damage and correct function. ▪ Check if the cotter pin and nut of the shackle and the hook are not loose. <p>If the permissible deviation of the original dimensions is exceeded (see the “Checklist”, chapter 8.3) or if any other non-conformities are found, have trained specialists repair the scale. Do not repair the scale yourself. Remove the scale from use immediately!</p> <p>All repairs and spare parts must be documented by trained specialists (see the Checklist, chapter 9.2).</p>
<p>Every 12 months</p>	<ul style="list-style-type: none"> ▪ All the load-bearing components must be inspected by trained specialists and documented in the “Extended maintenance” checklist.

Tip

When checking for wear, follow the guidelines in the figures below (chapter 8.5).

8.3 “Periodic maintenance” checklist

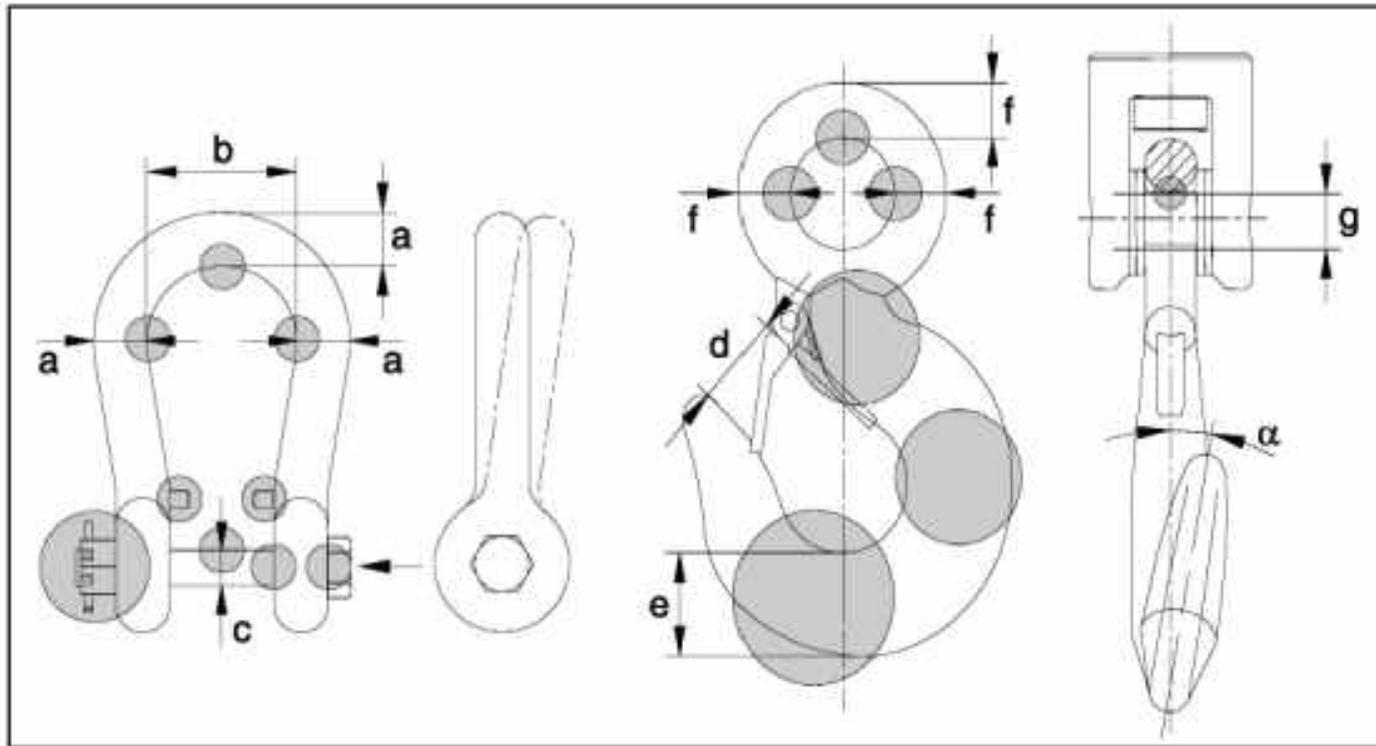


For more information on the inspection, see the maintenance table below (see chapter 8.4) and the figures in chapter 8.5.

	Shackle					Hook									Date	Inspector
	a d	b	c	Wear (see grey fields)	Cotter pin and nut	d	e	f	g	h	Angle α	Wear (see grey fields)	safety catch	Articulated joint		
Max. permissible deviation	5%	0%	5%	No deformations or cracks	Well fixed	10%	5%	5%	5%	± 1 mm	10°	No deformations or cracks	Correct operation	Correct operation		
Dimensions before first use																
3 months																
6 months																
9 months																
12 months																

“Maintenance must be carried out by trained specialists.”

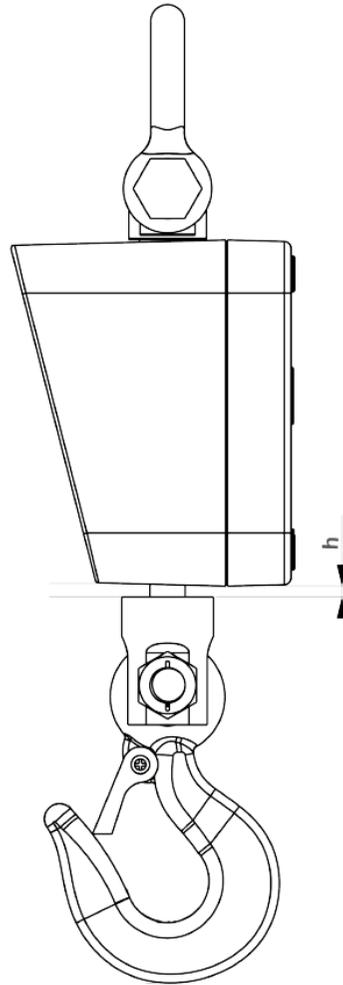
8.5 Drawings of a hook, shackle and crane scale



8.6 Inspection cycles

Inspection	Every day	Every 7 days	Every 3 months	Every 12 months
Presence of all crane scale parts	<input checked="" type="checkbox"/>			
Visual inspection for damage	<input checked="" type="checkbox"/>			
Visual inspection and operation inspection of the hook safety catch	<input checked="" type="checkbox"/>			
Visual and functional inspection of the articulated joint	<input checked="" type="checkbox"/>			
Inspection of the shackle cotter pin and nut	<input checked="" type="checkbox"/>			
Impurities		<input checked="" type="checkbox"/>		
Marking inspection (legible nameplate)		<input checked="" type="checkbox"/>		
Inspection of all dimensions as per the checklist in chapter 8.3			<input checked="" type="checkbox"/>	
Extended maintenance by trained specialists, (see chapter 9.1)				<input checked="" type="checkbox"/>

8.7 Drawing with “h” dimension



9. Annex

9.1 “Extended maintenance” checklist (general inspection)

The extended maintenance must be carried out by trained specialists.

Crane scale		Model Serial number				
Cycle	Hook	Shackle	Screw connections	Date	Surname	Signature
12 months						

