



## DIGITAL CRANE SCALE

LD | LDN

**Technical manual**





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# Declaration of conformity

## Declaration of conformity

**Manufacturer:** EHP-Wägetechnik GmbH

**Address:** Dieselstrasse 8, D-77815 Bühl (Baden), Germany

hereby declares that the product: **digital crane scale type LD / LDN**

**Plant number:**

**Year of manufacture:**

complies with the following harmonized standards with all options:

Machinery Directive 2006/42/EC;

EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11 according to the 2014/30/EU directive (electromagnetic compatibility)

EN 61010-031 Part 1/ Safety requirements for electrical equipment for measurement, control and laboratory use

EN 60950-1:2006 according to Directive 2014/35/EU (Low Voltage Directive)

EN 62368-1 Equipment for communication technology - Part 1: Safety requirements

EN 1677-1 Components for lifting accessories - Safety - Part 1: Forged components, Grade 8

EN 1677-2 Components for slings - Safety - Part 2: Forged hooks with safety latch, Grade 8

EN 1677-4 Components for lifting accessories - Safety - Part 4, Forged components, Grade 8

For use as a non-automatic weighing instrument with EC type-approval, the requirements of Directive DIN EN 45501 are met.

The optional radio equipment complies with Directive 2014/53/EU.

The crane scale complies with the requirements of the standard EN 13155:2009-08 "Crane-safety-less load handling attachments".

The following national standards and technical specifications were also applied: DGUV regulation 100 - 500 chapter 2.08

The product is marked with the CE mark

Bühl, June 2024

A handwritten signature in black ink, appearing to read 'Markus Ebel', written in a cursive style.

Markus Ebel / Technical Manager

This declaration is in accordance with DIN EN ISO/IEC 17050-1.



# Explanations to the manual

In this technical manual you will find the necessary information for operating the **LD and LDN digital crane scales**.

- ▶ Please read the operating instructions before you put your crane scale into operation. This will protect you and prevent damage to your equipment.
- ▶ Always keep this manual in a place where employees, service personnel etc. can read it. Present this manual to the inspector or the appointed specialist company at each periodic inspection.

## Design features of this manual

Various elements of this manual have fixed design features. This allows you to easily distinguish the following elements:

Normal text

- Enumerations

- ▶ Action steps

**Table titles** and **illustrations** are printed in bold.

- ① Tips contain additional information.

## Design features of illustrations

If reference is made to elements of an illustration in a legend or in the running text, they are given a number (1). The numbers in the running text always refer to the figure shown.



**Figure 1 - Explanation of design features**



## Technical data

<b>Power supply</b>	6V DC maintenance-free accumulator 12Ah
<b>Minimum voltage of the accumulator</b>	5,3V DC
<b>Power supply of the IR remote control</b>	3x 1.5V type AAA, Micro, LR03, AM4, MN2400
<b>Range of IR remote control</b>	approx. 35 m with angle < 20
<b>Operating time</b>	at least 70 hours
<b>Power supply of the charger</b>	110- 230V AC, 50/60Hz
<b>Recharge time of the accumulator</b>	under 12 hours
<b>Max. Resolution in calibrated version</b>	2.500 parts
<b>Nominal temperature range</b>	-10°C...+40°C
<b>Operating range</b>	-20°C...+50°C
<b>Protection class</b>	IP 54

Table 1 – Technical data



# Safety Instructions

## TO BE NOTED

- The unit should only ever be opened by a qualified specialist technician!
- The device must be protected from heat and moisture!



## IMPORTANT SAFETY INSTRUCTIONS



### Before installation

- The crane scale is suitable for weighing and transporting in accordance with EN 13155.
- The crane scale is attached to the hook of a crane in accordance with the regulations.
- The operator is responsible for the safety of the device. Crane scales are load suspension devices according to DIN EN 13155, including accessories such as hooks, shackles and eyes. These parts must be inspected for safety at regular intervals, but after one year at the latest. Visual inspections for damage to tensile stressed parts such as hooks, eyes, connecting links etc. should be carried out continuously.

Especially in 3-shift operation, this inspection cycle must be carried out in accordance with the Industrial Safety Regulation §11.

We recommend a safety inspection every 4 months, and after 12 months at the latest an additional crack detection with the electrical crack detection method or the red-white process must be carried out during this monitoring.

We would be pleased to take over these safety checks for you by sending your device to our head office in 77815 Bühl, Germany.

- Check that the safety flaps of the hooks are in perfect condition. These prevent hanging loads (ropes, chains, etc.) from unhooking.
- Check that the eyelets, shackles, lower load hooks, bolts and safety pins are in perfect condition. In case of heavy wear ( $\geq 10\%$  of the original dimensions) of these parts, please contact the EHP customer service.
- Safety and protective devices must never be removed or modified.
- Make sure that the scale is securely suspended.
- Observe the regulations for prevention of accidents.
- Keep this technical manual in a safe place close to your working area.



**When moving loads, avoid at all costs:**

- Lifting unevenly
- Trailing the goods on the floor
- Sudden lifting or setting down or abrupt stopping

**During use:**

- **Staying under lifted loads is strictly prohibited!**
- Always ensure that the scale and load are securely hung up.
- Lifting or transporting persons and live animals with the crane scale is prohibited!
- Loads that are heavier than indicated on the load plate mounted on the side of the crane scale are not allowed to be lifted.
- When lifting check that the load is correctly balanced.
- If the display starts flashing or the display shows OL, the maximum load has been exceeded. The load must be lowered again immediately.
- Never allow the load to swing.
- Lift at minimum speed.

**For CE-M approved scales (model LDN):**

- CE-M approved scales are only approved for use in a weatherproof environment.
- Do not operate the scale at risk of frost (below -10°C) or in a very hot environment (above +40°C). In this temperature range.
- The verification marks and seals on CE-M approved scales must be handled with care. If they are damaged, please notify your regional weight and measures authorities.

**In case of malfunctions:**

- Repairs may only be carried out by qualified personnel!
- Read the chapter "Troubleshooting" and „Error detection“.
- Contact the EHP customer service.



**Special applications:**

A standard crane scale cannot be used in pickling or galvanizing baths within production, as this can lead to irreversible damage to the load-bearing parts and electronics due to liquid metal embrittlement. If you still wish to use the crane scale in these areas, it must be specially equipped by EHP. Even if the crane scale is well-protected, damage can still occur from this application. Technical defects caused by use in these baths are not covered by warranty or liability.

**Warranty**

The warranty is void in case of:

- Improper use of the manufacturer's instructions in this technical manual
- Operating the device in an unintended use
- Mechanical damage, damage by humidity and liquids
- Mechanical modification of the crane scale
- Wear and tear
- Use of non original EHP batteries, chargers and power supplies
- Manipulation of the loading device
- Overloading the crane scale
- Modification or replacement of the load-bearing parts



## Scope of delivery

- Digital crane scale LD (calibrated) or LDN (CE-M approved)



*Figure 2 - Digital crane scale LD | LDN*

The following accessories are included in the scope of delivery:

- Mounting eyelet
- Load hook
- Ram protection (from model LD 1 | LDN 1)
- Infrared remote control
- Rechargeable battery 6V/12Ah
- Charger 6V/1.3Ah with charging current limiter



# Product overview

## Digital crane scale LD | LDN (Front view)



*Figure 3 - Front view*

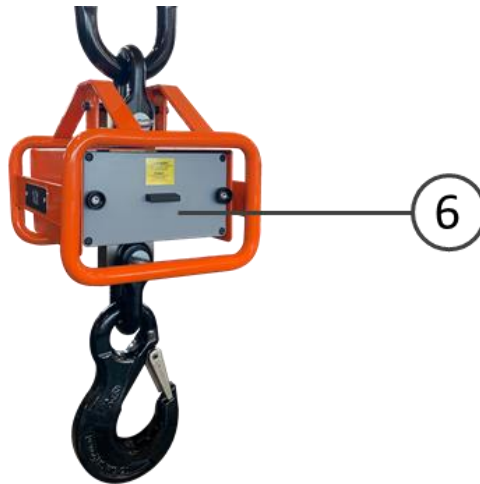
The **LED display (1)** incl. **control panel (2)** with 6 function keys formst he central control unit.

The surrounding **Ram protection (3)** helps to prevent impact damage. The **eyelet (4)** is located on the top and the **load hook (5)** at the bottom.

Depending on customer configuration, the figure shown above may vary.



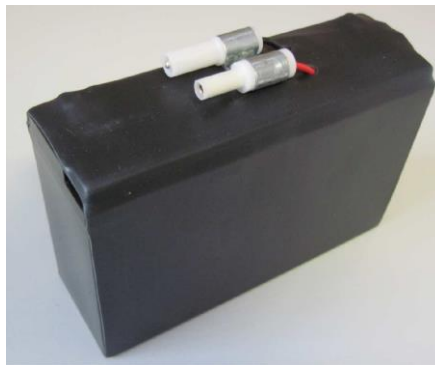
## Digital crane scale LD | LDN (Rear view)



*Figure 4 - rear view*

At the rear of the **digital crane scale LD | LDN** the **battery box (6)** is located, which can be opened by loosening the two knurled screws.

Inside the housing is the 6V battery.



*Figure 5- 6V battery/12Ah LD | LDN (Article-No. 69268)*

This is connected via the two round connectors. The round plugs are designed in such a way that it is not possible to inadvertently swap the + / - poles.



*Figure 6 - Round plug for 6V battery connection*



## Product details

### Ram protection



The surrounding ram protection shields the electronic and measuring unit of the crane scale from impact damage.

*Figure 7- Ram protection*

### Eyelet



The crane scale will be hung up with its eyelet in the crane hook. It must be ensured that the eyelet can move freely in the hook base of the crane hook, rests properly in the hook and is not tilted.

*Figure 8 - Eyelet*

### Load hook



The load hook is used to weigh and transport the goods. The load capacity of the load hook matches the load capacity of the crane scale. It is restricted to exchange the hook for any other handling equipment.

The safety catch of the load hook prevents the load from accidentally slipping out. Before lifting the load, make sure that the safety catch is fully closed.

*Figure 9 - Load hook*






## LED-Display

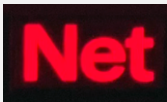


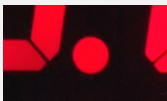



The LED display shows the weight of the lifted goods and additional parameter.




1. 5-digit weight display
2. +/- sign
3. PT (Pre-Tare)
4. Net weight value (Tare function activated)
5. Standstill indicator
6. Battery empty
7. 1 / 2 range display

Display indication	Information
	<p><b>Display in general</b></p> <p>The display consists of a 5-digit, 7-segment LED.</p>
	<p><b>Standstill display / Peak value display</b></p> <p>The illuminated symbol means that the load on the scale is hanging steady and a valid weight value is shown.</p> <p>If the  symbol flashes, then the peak value display or the casting speed display has been activated with key 9 on the remote control (see Infrared remote control on page 19).</p>



	<p><b>Symbol for net weight</b></p> <p>This symbol is shown when a tare value has been entered. The weight value displayed is a net weight.</p>
	<p><b>Symbol for preset tare (Pre-Tare)</b></p> <p>This symbol is shown together with the  - symbol when a tare value is entered manually with the remote control. The weight value displayed is a net weight.</p>
	<p><b>Symbol for decimal point</b></p> <p>Appears to indicate the position of the decimal point.</p>
	<p><b>Symbol for battery control</b></p> <p>If the battery is discharged (at 5.4 volts), the  symbol appears on the display.</p> <p>This indicates that the battery is "empty" and needs to be recharged. If this is not possible immediately because of the work process, you can continue working for approx. 30 minutes. If the battery is discharged (at 5.3 volts), the crane scale switches off automatically to avoid deep discharge and damage to the battery.</p>
	<p><b>Symbols for dual range systems</b></p> <p>For dual range scales, this symbol indicates the weighing range in which the crane scale operates. The weighing ranges are printed on the nameplate of the crane scale.</p>



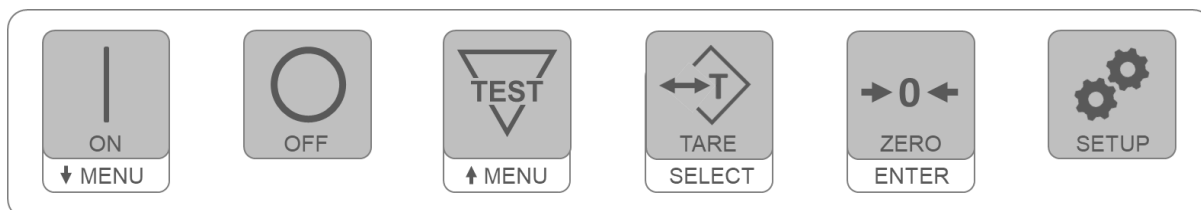
	<p><b>Sign- symbol</b></p> <p>Every weight is displayed combined with its algebraic sign</p>
	<p><b>Overload display</b></p> <p>If more than 2e (double number unit) above the nominal weight is added, the display on the scale starts flashing.</p> <p>If more than 9e above the nominal weight is added the crane scale shows "OL" (overload) and switches OFF automatically.</p> <p><u>Example:</u></p> <p>The scale has a weighing range of 10t; calibration value 5kg x 2e = 10kg, i.e. the display flashes at a weight exceeding 10010kg and "OL" appears from 10045kg.</p> <p>Always pay attention that the crane scale is never overloaded due to safety reasons.</p>

**Table 2 - Display indication**

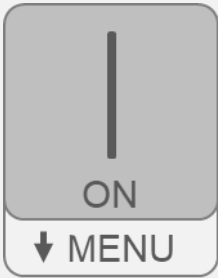
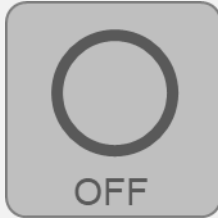


## Control panel

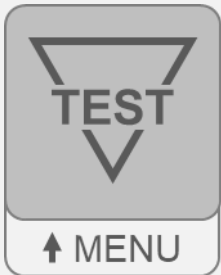

The crane scale can be operated via the integrated control panel below the LED display.



**Figure 2 - Control Panel**

Key	Function
	<p><b>Power</b></p> <ul style="list-style-type: none"> <li>• Turn on the scale</li> <li>• Enables automatic segment control of the display</li> <li>• After that, the scale automatically adjusts to "0"</li> </ul> <p>Always switch on the scale 5 minutes before the first weighing.</p> <p>If the preload (sling) is greater than 20%-30% of the rated load, only the + sign lights up . The scale then switches off again. The normal operating mode is only achieved again by reducing the preload and switching it on again.</p> <p>In the setup menu, this button can be used to select the next parameter.</p>
	<p><b>Power-Off</b></p> <ul style="list-style-type: none"> <li>• Turn off the scale</li> </ul> <p>Turning the scale on and off resets temporary errors (reset function).</p>



	<h3>Test-Routine</h3> <p>By pressing the button, a check is carried out on each individual light segment of the display (segment control) and further information about the scale is displayed.</p> <p><u>For about 5 seconds, the display flashes consecutively:</u></p> <p><b>8 8 8 8 8 (</b> Segment control)</p> <p><b>L A H</b> (Softwareversion)</p> <p><b>1 2 . 4 7</b> (Scale number, Release)</p> <p><b>X X</b> (Waagen number*)</p> <p><b>C X X</b> (Frequency Channel*)</p> <p><b>H X X (</b> IR remote control channel*)</p> <p><b>CAL X X</b> (Number of calibrations performed*)</p> <p><b>I n I t</b> (Scale self test)</p> <p>* "X X" stands for a number of the respective value</p> <p>In the setup menu, this button can be used to select the previous parameter.</p>
	<h3>TARA-Taste</h3> <ul style="list-style-type: none"> <li>• TARA (subtractive) is activated</li> <li>• Scale stores the current weight value in the tare storage</li> <li>• "0" appears in the display</li> <li>• Net LED lights</li> <li>• Pressing the TARA button again resets the tare function, clears the tare memory and the display shows the gross weight again</li> <li>• Net LED goes out</li> </ul> <p>In the setup menu, this button can be used to select the parameter.</p>



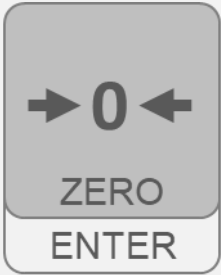

	<p><b>Reset button</b></p> <ul style="list-style-type: none"> <li>• Sets display to "0" (semi-automatic zeroing device)</li> <li>• Zero adjustment range: -1 to +3% of the rated load (LDN model - legal-for-trade); Max. zero adjustment range: -99 to +99% of the nominal load (model LD - non-legal-for-trade)</li> </ul> <p>"Zeroing" is not possible outside the zeroing range and in tare mode. Only outside the 1/4d range does the sign symbol glow.</p> <p>In the setup menu, this button can be used to confirm the selected parameter and its change.</p>
	<p><b>Setup-Taste</b></p> <p>This button can be used to select the setup menu to set certain parameters.</p>

Table 3 - Control Panel



## Infrared remote control

The infrared remote control has a robust housing and is equipped with large control buttons that can be easily operated even when wearing gloves.

All functions of the crane scale can be controlled via remote control, such as OFF, TARE or zeroing. Furthermore, the remote control offers further operating possibilities, which are used in connection with EHP weighing data receiving units, such as the print function.

① Up to a distance of 30m the crane scale can be operated with the remote control. If the working range should shorten (less than 20m), this is an indication that the batteries need to be changed (3 pieces 1.5V Type AAA, Micro LR03, AM4, MN2400).

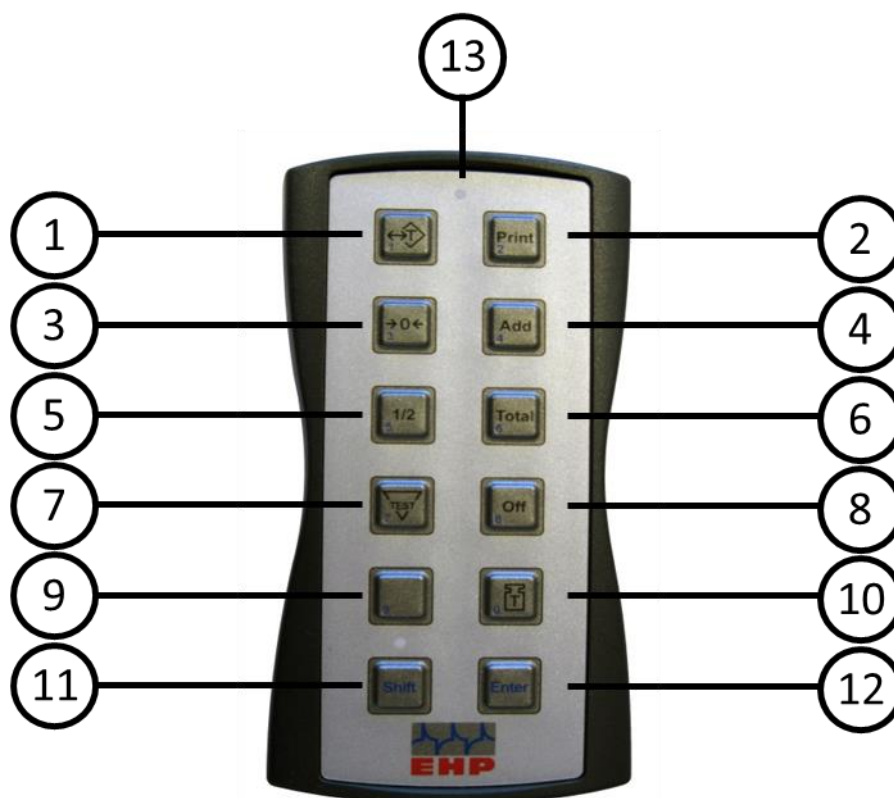
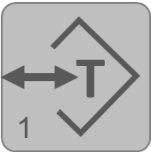







Figure 10 - Infrared remote control

### NOTE

Some functions like Print, Add or Total can only be used in combination with EHP weighing data receiver (see **Accessories** on page 39).



1		<p><b>TARE-Button</b></p> <p>This button has the same function as on the crane scale control panel.</p>
2		<p><b>PRINT-Button</b></p> <p>Press this key to transfer the weighing data to optionally available EHP receiving devices (see <b>Accessories</b> on page 39).</p> <p>For example, an individual receipt can be printed out on TELEDATA USB weighing data receiver.</p>
3		<p><b>ZERO-Button</b></p> <p>This button has the same function as on the crane scale control panel.</p>
4		<p><b>ADDITION-Button</b></p> <p>Pressing this key activates the addition function.</p> <p>This function helps to store individual weights within a batch or to add them.</p> <p>This function can only be used with additional weighing data receiving units, e.g. the TELEDATA USB.</p>
5		<p><b>Dual range shift-Button</b></p> <p>Press this key to switch the increment range of your scale (this function is not included in standard crane scales. For example, from 1 kg increments to 2 kg increments.</p> <p>Note: The scale automatically switches to the second range as soon as a corresponding load value is reached. After the load has been removed (0kg display on the scale), you can switch back to the first measuring range. It may be necessary to press the zeroing button beforehand to record an exact 0kg value.</p>
6		<p><b>Print Total-Button</b></p> <p>Herewith the total weight (plus additional data) is transmitted by radio to weighing data receiving units, e.g. the TELEDATA USB. at the integrated printer a sum voucher (addition of the single registrations transmitted by add function) is printed out.</p>






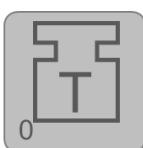



7		<b>Test-Routine-Button</b> This button has the same function as on the crane scale control panel.
8		<b>OFF-Button</b> Press this button to turn off the scale via remote control. The display flashes 10x OFF during the switch-off phase. During this time, you can interrupt the switch-off process by pressing any key again.
9		<b>Special function key</b> This button can be assigned with any special functions like showing the peak value or displaying the casting speed.  Special functions are not included in the standard scope of delivery. Contact your EHP contact person for further information.
10		<b>Pre-Tare-Button</b> Press this button to activate the pre-tare function. The display shows now the last pre-tara value. Use the keys 1 to 0 to enter the tare value and confirm with the ENTER key. The tare values must lie within a calibration value. Higher or lower values are rounded up or down.
11		<b>Shift-Button</b> Pressing this button activates the numeric buttons on the IR remote control. Additionally the LED above the shift key is flashing. Now any numbers from 0...9 can be entered as a code (maximum 5 digits). Press the ENTER key to confirm the entry, the Shift LED goes out again.  This code is now transmitted to the weighing data receiver.
12		<b>Enter-Button</b> Press this key to confirm the numerically entered values.
13		<b>Send-LED</b> Flashing of this LED indicates that the IR remote control is transmitting data.

Table 4- Buttons of IR remote control



## Setting the channel of the infrared remote control

### Manual channel setting

To establish communication between the scale and the remote control, the transmission channel may have to be adjusted.

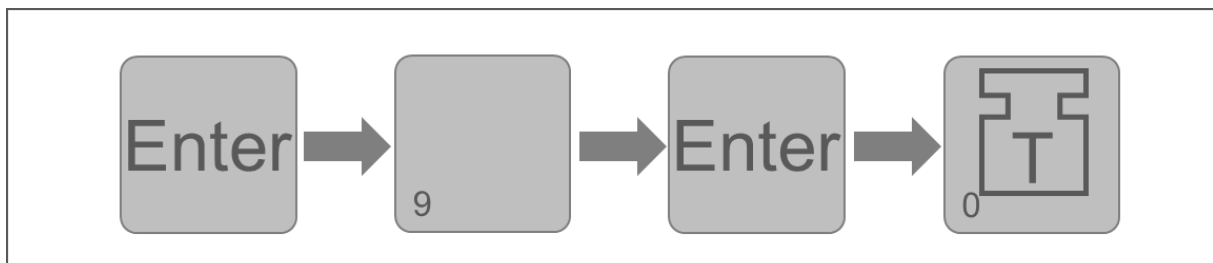
1. By pressing the „TEST“-Button the crane scale display shows the current setting parameter in following sequences:



88888	=	Segment test
LAH	=	Release
12.21	=	Version
xx	=	Scale number (01-16)
Cxx	=	Canal number (01-28)
<b>Hxx</b>	=	<b>Remote control number (01-12)</b>

The remote control number Hxx (for example: H01 for channel 01) indicates on which remote control channel the crane scale's infrared sensor receives data.

2. Set the remote control to the same channel as the infrared sensor of the crane scale. You can access the setup menu by pressing the following key combination quickly one after the other.



The red LED above the SHIFT key will then light up for 5 seconds, which visualises that you are in the setup menu. During this time the remote control number can be changed.

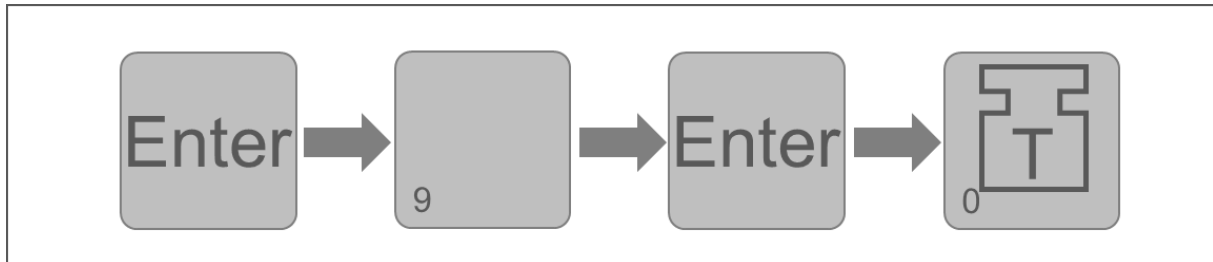
To change the remote control number, type in the key combination 2xx. Where xx corresponds to the desired channel number. Possible values are 201 (1st channel) to 212 (12th channel).



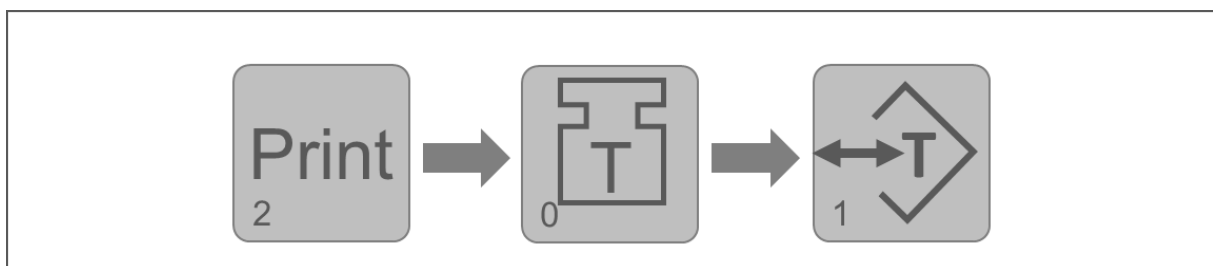
### Example:

After pressing the TEST button on the crane scale the setting parameters are shown with the remote control number H01. This indicates that the crane scale is sending on Channel 1.

Therefore the IR remote control must be set to the transmission channel by pressing the key combination:



and then followed by the key combination 2 0 1



The remote control now transmits on the same channel as the crane scale.

### NOTE

To set the channel of the infrared remote control to a defined number please ensure that the crane scale channel number is also set to this number.

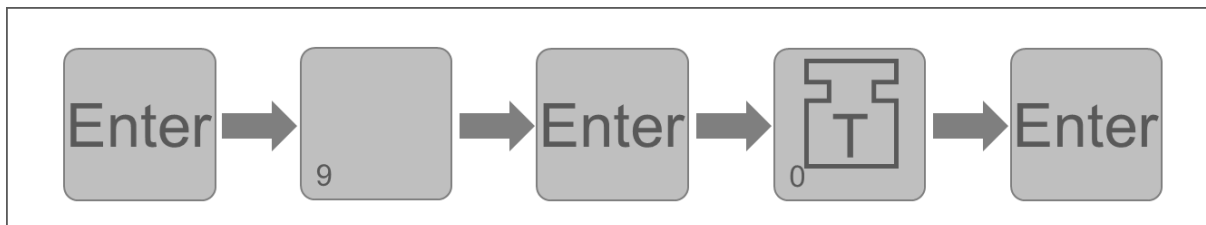
For more information on changing the crane scale parameters, refer to section „Functions of the LD | LDN crane scale on page 28“.



## Automatic channel search

The channel number search can be performed automatically.

Align the infrared remote control with the crane scale display. Press the following key combination quickly, one after the other:



The canal search is indicated by blinking of the transmitter LED. As soon as the scale reacts to the signal of the remote control press ENTER again.

The canal number will be stored automatically indicated by the flashing LED.



## Charger & Accumulator

The supplied **6 volt charger (1)** can be connected directly to the charging socket of the crane scale. The accumulator can also be charged directly using the **adapter (2)**.

The **status LED (3)** indicates the charging status of the accumulator.



*Figure 11 - Charger & adapter*

### NOTE



The charger is only suitable for charging maintenance-free original EHP accumulators. The charger cannot be opened.

If the device is damaged due to improper opening, the warranty is voided. Before putting the device into operation, make sure that sufficient ventilation is provided.

The charger may only be operated in closed rooms and should not be exposed to moisture. Any modification to the charger will invalidate the device approvals.






## Connecting the charger

	<p>The <b>charging socket incl. plug lock (1)</b> is located at the bottom side of the crane scale. The fuse holder (fuse 1A, 5x20mm).</p>
	<p>The plug of the charger is inserted into the charging socket. Before disconnecting the charger cable, the plug lock on the charger socket must be pressed.</p>

**Table 5 - Connecting the charger**

When the charger is connected, the status LED on the charger lights up. The different colours have the following meaning:

Status - LED	Information
	<p><u>LED lights up red:</u></p> <p>Accumulator is charged with a current of 1.3 A.</p>
	<p><u>LED lights up orange:</u></p> <p>Accumulator status is analyzed.</p>
	<p><u>LED lights up green:</u></p> <p>Accumulator is charged, the charger has switched to trickle charge (max. 50 mA charging current). Overcharging is not possible.</p>

**Table 6 - Status-LED of charger**



## Instructions for use of original EHP accumulators

- With delivery the accumulator is already charged for 8 hours and is immediately ready for use.
- The accumulator should never be stored uncharged.
- A completely discharged battery requires at least 12 hours of charging.
- If the charging time is less than 12 hours, a longer charging period of approx. 24 hours is recommended for the next time.
- To avoid deep discharging, charge the accumulator immediately after the BAT symbol appears on the crane scale display.
- The accumulator should be charged at room temperature. Temperatures below 10°C and above 30°C should be avoided during charging.
- Deep discharging must be avoided.
- In a shift operation, the scale's battery must be regularly charged, and it's important to always have a spare battery on hand. Even if the display on the scale doesn't show a low battery indicator (BAT), you should replace the battery at least every 48 hours in multi-shift operations or after 72 hours in single-shift operations. After replacement, the battery should always remain on the charger to be properly charged and maintained to ensure it lasts as long as possible.

### **NOTE**

If the accumulator is not used for a long time period, it should either be fully charged again or stored with the charger connected (trickle charge). Cool and light protected storage rooms are recommended.

After longer periods of non-use of more than 3 months or after deep discharge, the battery should be charged for at least 24 hours.

Batteries are considered wear and tear parts, and their performance and quality depend largely on the user's handling. Improper use can lead to premature failure. For this reason, the warranty for batteries is limited to six months.



# Functions of the LD | LDN crane scale

## General

The setup button on the scale can be used to adjust various settings. A long press on the setup button will take you to the menu. The following parameters can be set by the end user:


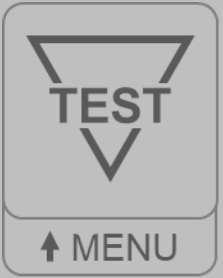
1. P07 -> Automatic shut-off
2. P13 -> frequency channel
3. P14 -> Scale number
4. P18 -> IR Channel number
5. P25 -> Protocol Interface
6. P38 -> Channel Slave-Scale

The changes can be saved by pressing and holding the setup button again. Below are the most important functions and their settings explained in detail.


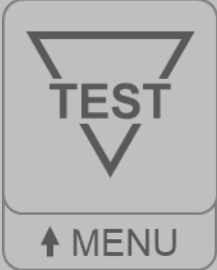


## Abschaltautomatic

The crane scale is equipped with an automatic switch-off, but this is deactivated by default.

The automatic shut-off is activated via the buttons on the control panel, as described in Fehler! Verweisquelle konnte nicht gefunden werden. .

1		With the crane scale switched on, press and hold the setup button for a few seconds to open the parameter menu.
2		Then press the TEST button until P07 appears on the display.



<b>3</b>	  	<p>Use the TARA button to activate the parameter to call up the position to be changed.</p> <p>Use the TEST key to type in a value between 01-60. This value indicates how many minutes the scale should switch off.</p>
<b>4</b>		<p>Use the RESET key to temporarily save the parameter value.</p>
<b>5</b>		<p>Press and hold the setup button for a few seconds to save changes.</p>

**Table 1 - Activation of the automatic shut-off**



## Change the radio frequency, scale number, and infrared channel of the scale

Some operating parameters of the crane scale can be adjusted by the end user.

These adjustments can be useful, for example, if several EHP crane scales are operated at one location and the radio link is interfered with by other machines.





88888	=	Segment test
LAH	=	Release-Firmware
12.21	=	Version-Firmware
xx	=	Scale number (01-16, serves as identification number)
Cxx	=	channel number (01 - 28, corresponds to the set radio frequency)
Hxx	=	Remote control number (01-12)








To change the scale, channel, or remote number, do the following:

### NOTE





Soll ein Parameterwert nicht verändert werden, kann dieser durch weiteres tippen der TEST-Taste übersprungen werden.

1		With the crane scale switched on, press and hold the setup button for a few seconds to open the parameter menu.
2		Press the TEST button until P13 appears on the display.  Parameter P13 is used to set the radio frequency channel (Cxx).







3	  	<p>Press the TARA button to activate the parameter.</p> <p>Then use the TEST button to select a desired value between 01 – 28 (corresponds to channel 01 – 28).</p>
4	 	<p>Confirm and close the parameter by pressing the RESET key.</p> <p>The display shows P13 and xx alternately, where xx corresponds to the newly set channel number.</p>
5	 	<p>Press the TEST button until P14 appears on the display.</p> <p>Parameter P14 is used to set the scale number.</p>



6	 	<p>Press the TARA button to activate the parameter.</p> <p>Then use the TEST button to select a desired value between 01 – 99 (corresponds to channel 01 – 99).</p>
7		<p>Confirm and close the parameter by pressing the RESET key.</p> <p>The display shows P14 and xx alternately, where xx corresponds to the newly set scale number.</p>
8		<p>Press the TEST button until P18 appears on the display.</p> <p>Parameter P18 is used to set the remote control number.</p>



9	 	<p>Press the TARA button to activate the parameter.</p> <p>Then use the TEST button to select a desired value between 01 – 12 (corresponds to remote control number 01 – 12).</p>
10		<p>Confirm and close the parameter by pressing the RESET key.</p> <p>The display shows P18 and xx alternately, where xx corresponds to the newly set remote control number.</p>
11		<p>Press and hold the setup button for a few seconds to save changes.</p>

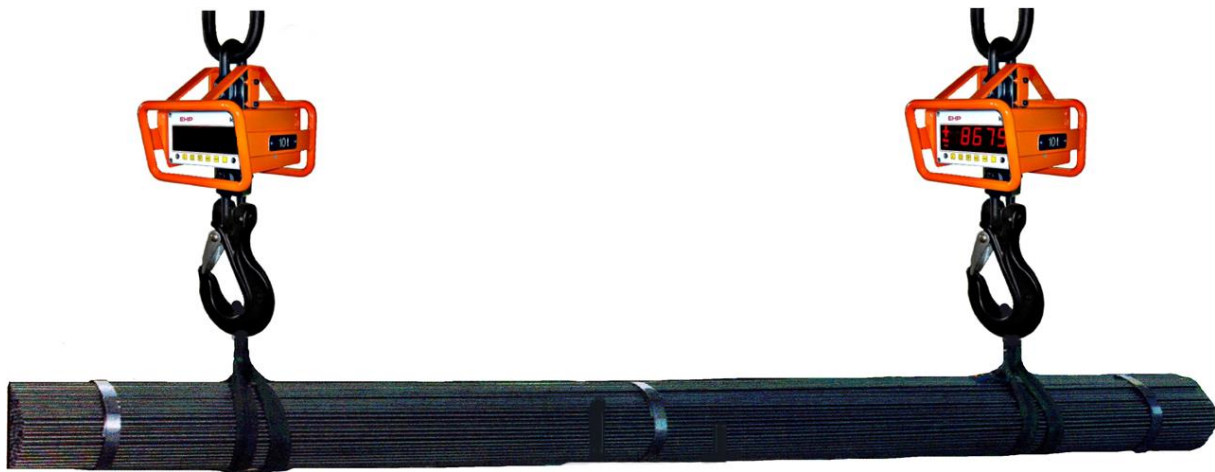
**Table 2 - Radio frequency, scale number and infrared channel**



## Master - Slave scale function

This function is only available with special equipment (two or more LD or LDN crane scales incl. radio equipment needed). Master -Slave scale function can be retrofitted at existing scales. Please contact your EHP contact person.

Up to four LD | LDN crane scales can be used in a compound system (Master - Slave) to weigh long materials or large assemblies.



**Figure 12- Master – Slave scale function with two LD | LDN crane scales**

### Calibrated master – slave system

The master scale displays the total weight of all scales used within the system.

The slave scales show no weight, its readiness for operation is signalled by the display " \_ \_x\_ \_", where x corresponds to the respective slave scale number (1 - 3 possible).

If all scales used within the system have registered a valid weight, the stability indicator (🔴) is shown in the display of the master scale.

Zeroing or taring always affects the entire system, i.e. if the "O" or "TARE" key on the master scale is pressed, the weight measured by each individual scale is zeroed or stored in the TARE memory.

The master scale can also be operated independently, however, please note that due to the missing feedback signals of the slave scales, no stability indication is displayed and therefore printing or processing of the weighing data by radio is not possible.



**NOTE**

The activation / deactivation of the master – slave function requires scale setup adjustments which can only be carried out in agreement with the manufacturer.

Please contact directly EHP Wägetechnik GmbH.

CE-M approved master – slave system

The following characteristics apply only for CE-M approved master – slave systems:

- Each scale displays its own weight
- The scales are operated separately with the infrared remote control
- With the optional DRC 433 wireless remote control, only the master scale can be operated.
- The sum of all scales is shown in the display of the respective weighing data receiver.

- Tare setting:

Variant 1: The tare weight is set by using the tare button on the device or by remote control on the respective crane scale.










Variant 2: The tare weight is set on the weighing data receiver for the master and slave scales. The weighing data receiver is tared by pressing the "M/S Tare (U)" key for a longer period.



## Set weight limits

This function can only be used with optional equipment.

With this function an acoustic signal or a warning message as output can be given out when certain weights are reached. You can enter up to four different weight values.

IR-remote control	Display	Comment
	AL	Open the function menu by pressing ENTER.
	L1 L2 L3 L4	Selection of weight limit.  Button 1 to select weight limit 1 (L1), Button 2 to select weight limit 2 (L2) etc..
	00000	Use ENTER to select weight limit. Enter the required weight by using the remote control.
	00500	Example for weight limit of 500kg. (If no entry is made, the display returns to the "AL" menu after 5 seconds).
	00500	Save weight limit (display flashes).
	AL	Return to function menu.  Input of further weight limits possible by pressing buttons  ,  or  .  Leave function menu by pressing  again.






**Table 7 - Set weight limits**



## Set signal time for weight limits

This function can only be used with optional equipment.

As soon as a weight limit value (L1-L4) is reached, an acoustic signal sounds or a warning message is given out. The duration of the signal can be selected as a continuous signal or limited in time between 1-9 seconds.

IR-remote control	Display	Comment
	AL	Open the function menu by pressing ENTER.
	Example: Hrn 4	Press button 5 to change signal duration.  The set signal duration (in seconds) is displayed. A default value of 4 seconds is preset (Hrn 4).
Example: 	Example: Hrn 2 (Signal duration 2 sec.)	To change the signal duration, press the respective button number on your remote control. The button number corresponds to the signal duration in seconds.  Button number 0 (Einstellwert Hrn 0) activates the continuous signal. The continuous signal stops when the weight is below the respective weight limit.
	Hrn 2	Save (display flashes).
	AL	Return to function menu.  Set further functions or leave menu by pressing  again.






**Table 8 - Set signal time for weight limits**



## Automatic taring for weight values

This function can only be used with optional equipment.

With this function automatic taring is performed as soon as one of the defined weight values (L1-L4) is reached.

IR-remote control	Display	Comment
	AL	Open the function menu by pressing ENTER.
	tAr 0	Autotaring is deactivated as default value.
	tAr 1	Autotaring enabled by pressing button 1.
	tAr 1	Save (display flashes).
	AL	Return to function menu. Set further functions or leave menu by pressing  again.

**Table 9 - Automatic taring for weight values**



## Accessories

The crane scale LD | LDN can be upgraded with a radio transmitter unit to send weighing data to EHP receiving units. This allows weighing data to be processed quickly and easily. A selection of additional accessories is shown in Figure 13.

For more information, please contact your weighing partner or directly EHP-Wägetechnik GmbH ([www.ehp.de](http://www.ehp.de)).



Figure 13 - Overview accessories



## Spare part list

Order number	Description
10633	Battery-Charger 6V / 1,3A
69268	Maintenance-free accumulator 6V / 12Ah
68344	Battery box cover LDN complete
60808	Knurled nut M6 (for battery box)
10700	IR – remote control V15
73060*	Electronic board LD/LDN*
52525	Fuse 1A, 5 x 20mm DIN 41571
72509*	Digital display LD/LDN complete*
72204	Front panel LD/LDN for models before 01/2013
10467	Front part LD/LDN EMI/ESD V13 for models from 02/2013
56639	Protective hood LD/LDN 0.5 - 5 t
61578	Protective cover LD/LDN 10 t
72237	Protective hood LD/LDN 0.5 - 5 t
10197	Ram protection LD/LDN 0,5 – 2 t
72216	Ram protection LD/LDN 5 t
72215	Ram protection LD/LDN 10 t /20 t
10139	Ram protection LD/LDN 25/30
66319*	Load cell LD/LDN 0,5-2 t*
74690*	Load cell LD/LDN 5 t*
69355*	Load cell LD/LDN 10 t*
72271*	Load cell LD/LDN 20 t*
10121*	Load cell LD/LDN 30 complete*
53449	BNC antenna 433 MHz
60951	Keyboard foil LD LED for models before 01/2013
55210	Charging cable for exchangeable battery
55199	Charging socket
55385	Fuse holder

**Table 10 – Spart Part list**

\*The marked spare parts are only sold to authorised specialists as their replacement requires advanced electrical/mechanical product knowledge



# Troubleshooting

Problem	Cause	Solution
Display is dark	No power	Check if crane scale is switched on. Check if accumulator is charged. Check condition of fuse.
After switching on, the display briefly shows the "+" sign and then switches off automatically	The crane scale is beyond the zero setting range	Switch off scale, unload and switch scale on again.
Display flashes	Crane scale is overloaded	Reduce the weight below the maximum capacity of the scale (see load plate on the right side of the scale).
Display shows OL	Severe overload of the crane scale	Immediately reduce the weight to a value below the maximum capacity of the scale (see load plate on the right side of the scale).
Crane scale cannot be switched off.	Negative weight value recorded outside the zero setting range (3% of the load capacity on verified scales)	Replace fuse and switch scale on again.
Scale cannot be zeroed	Balance is outside the zero setting range (only for LDN – CE-M approved)	Reduce the load to reach the zero setting range of the CE-M approved scale.
	Balance is used with TARE function (Net – LED is on)	Press the TARE key again to exit the TARE mode of the scale.
	Load at crane scale hook is swinging and an exact weight value cannot be recorded	Pick up the load again carefully without swinging, wait for standstill indication.



Problem	Cause	Solution
Displayed weight changes rapidly	Load is swinging	Pick up load more carefully.
	Strong temperature fluctuations	Switch crane scale off and let it adjust to ambient temperature for several hours.
Battery can no longer be used	Battery charger defect / not connected	Check power supply.
	Charger LED lights green	The battery has been deeply discharged, leave the battery on the charger for 48 hours.
	Battery gets hot during charging	Battery is worn out.

**Table 11 - Troubleshooting**



## Error detection

Automatic error detection routines cyclically check the functions of the crane scale and ensure a proper operation.

If an error is detected, it is automatically indicated on the display in the form of an error code. The balance switches off automatically after approx. 5 seconds.

Error code	Cause	Solution
<b>Err 02</b>	The input voltage of the measuring amplifier is too low.	Switch scale off and on again to see if Error is detected again.
<b>Err 03</b>	The input voltage of the measuring amplifier is too high.	
<b>Err 04</b>	AD- Converter error	Contact your EHP Service partner for further information.
<b>Err 05</b>	Error radio modem	An incorrect radio channel was set or the modem is defect.

*Table 12 - Error codes*



[illegible]



## **EHP service hotline**

**Do you need our support?**

**No problem - just call us free of charge!**



**Hotline: +49 7223 9366-0**

**Reach our technical experts from Monday to  
Thursday between 8 am & 4 pm (CET) and  
Friday between 8 am & 12 am (CET).**





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