

# USER INFORMATION

Radio-controlled choker system LC 64/69



LUDWIGCHOKER



LUDWIGSYSTEM

Edition 08/2013

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## EC Declaration of Conformity

As defined in the  
**EC MACHINE DIRECTIVE 2006/42/EG**  
**EC EMC DIRECTIVE 2004/108/EG**

Das Product: **LUDWIG CHOKER**  
Year of Manufacture: **2013**

was developed, designed and produced in compliance with the above EC directives,  
on the sole responsibility of:

**Ludwig System GmbH & Co KG**  
Fronau 13  
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In accordance with the applied and harmonized standards with content and validity at the date of issue (10 Jan 2008):

EN ISO 12100-1/2: Basic Concepts, General Principles for Design  
EN ISO 13857: Safety Distances for Upper and Lower Extremities  
EN 349: Minimum Gaps, Crushing of Parts of the Human Body  
EN 954-1: Safety-related Parts of Control Systems  
EN 13849-2: Safety-related Parts of Control Systems - Validation  
EN ISO 14121: Principles for Risk Assessment  
EN 60204-1: Safety of Machinery - Electrical Equipment of Machines

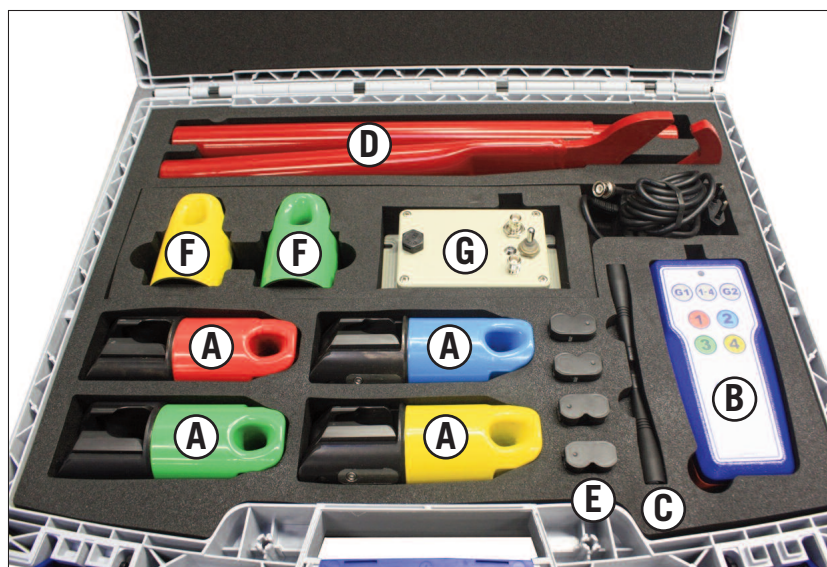
A complete technical documentation is available. The operating instructions associated with the product are at hand.

Person established within the Community and authorized to compile the technical documentation (Authorized Representative for Documentation): Peter Ruf

The special documents shall be sent, in response to a duly substantiated request by the competent national authorities, in hard copy form and by post.

Peter Ruf  
Technical Director

Delivery Scope		
Pos.	Designation	Quantity
A	LUDWIG CHOKER	4 pc.
B	Radio remote control	1 pc.
C	Antenna for radia remote control	1 pc.
D	Choker removal tool	1 pc.
E	Reserve batteries for choker	4 pc.
F	Replacement caps	2 pc.
G	Repeater (including recharging cable and antenna)	1 pc.
	Allen key 3 mm	1 pc.
	Allen key 1,5 mm	1 pc.
	Torx TX10	1 pc.
	O-Ring DM 50x1,5 mm	4 pc.
	Jumper	1 pc.
	Grease nippel	1 pc.
	User information (without illustration)	1 pc.



Delivery scope

#### Accessories

cap

cap plastic/chain

belt transmitter

## 1.0 Technical Data

### 1.1 Technical data - mechanical

Max. steel cable diameter	14 mm*
Max. diameter of choker nipple	27,5 mm
Max. length of choker nipple	41 mm
Max. permissible load-bearing capacity (LC64)	4,5 to
Max. permissible load-bearing capacity (LC69)	10,0 to

\* optionally with caps for chains/plastic rope

### 1.2 Technical data - electrical

Recommended choker battery (1x)	Durazell Ultra 223, Lithium Battery CR-P2, 6 V
Radio housing battery (4x)	Durazell Procell AA, MN 1500 LRG 1,5 V
Radio operating range	30 m
Radio frequency	868 MHz

### 1.3 Dimensions

Choker diameter (LC64)	64 mm
Choker diameter (LC69)	69 mm
Choker-Länge geschlossen	160 mm
Radio housing	Width 80 mm
	Height 180 mm
	Depth 42 mm

### 1.4 Weight

Choker (LC64)	ca. 1,7 kg
Choker (LC69)	ca. 2,2 kg
Funkgehäuse	ca. 0,8 kg

### 1.5 Environmental conditions

Ambient temperature	-15°C bis 60°C
Relative humidity	10-90%, non-condensing

## 2.0 Safety

### 2.1 General information

In addition to the user information and the binding rules for accident prevention applicable in the user's country and at the location of use, the recognised technical rules for safety and proper working methods must also be observed.

### 2.2 General information

The following terms and/or symbols are used for especially important information in the user information.

#### **Note!**

**Note** Special information with regard to the economical use

#### **Caution!**

**Caution** Special information on orders and prohibitions for damage prevention



**Danger** Information or orders and prohibitions to prevent injuries or extensive damage

### 2.3 Basic principle, proper use

The radio choker has been built using state-of-the-art technology and the recognise safety rules. However, a danger to the life and limb of the user or others or damage to the radio choker or other property can result during its use.

#### **Caution!**

**Only use the radio choker in a technically perfect state, in a safety hazard-conscious manner while observing the user information! Eliminate malfunctions immediately, in particular those which can reduce safety.**

Proper use also includes the observance of the user information and compliance with the inspection and maintenance conditions.

### 2.4 Organisational measures

The user information must always be kept within easy reach at the place of use of the radio choker.

In addition to the user information, generally applicable, legal and other binding rules for accident prevention and environmental protection must be observed and passed on to others!

Duties of this kind can, for example, also concern the provision and wearing of personal safety equipment.

Supplement user information with instructions including supervisory and notification duties for taking special aspects of operation into account, e.g. with regard to work organisation, working procedures and personnel used.

**Note!**

**The personnel charged with the activities on the radio choker must confirm that they have read the safety-related parts of the user information with their signature and must ensure that they have understood the contents. This particularly applies to personnel which only occasionally handles the radio choker (e.g. during maintenance).**

Check safety and hazard-conscious working of the personnel under observance of the user information at least occasionally!

**Caution!**

**Do not make any changes, attachments or modifications to the radio choker without the approval of the supplier/manufacturer!**

Spare parts must comply with the technical requirements specified by the manufacturer. Only genuine spare parts may be used.

## 2.5 Selection and qualification of personnel

Work on or with the radio choker may only be carried out by reliable personnel. Only use trained or instructed personnel. Clearly define the responsibilities of the personnel for operation and maintenance.

**Ensure that only authorized personnel handles the radio choker!**

Define a person responsible for the radio choker and enable him/her to reject orders of others which violate the applicable safety precautions.

Only permit personnel to be trained or instructed or currently undergoing general training to handle the radio choker under constant supervision by an experienced person!

## 2.6 Safety precautions for normal operation

Refrain from any manner of working which may be unsafe!

Take measures so that the radio choker is only operated in a safe and serviceable condition!

The radio choker must be checked for recognisable external damage and defects at least once per use! Immediately notify the responsible office or person of any changes which occur (including those in the operating behaviour)! Shut down the radio choker at once if necessary and immediately eliminate malfunctions!



Use only suitable and technically perfect lifting equipment with a sufficient load-bearing capacity!

Do not stand or work under suspended loads!

## 2.7 Safety precautions for maintenance work

Comply with maintenance and inspection activities and dates including information on the replacement of parts/equipment specified in the user information! These activities may only be carried out by specially trained personnel.

### **Caution!**

When performing maintenance and repair measures:

- 1) Ensure a clean workplace
- 2) Use appropriate special tools
- 3) Always tighten loose cap following maintenance work with special tightening spanner

## 2.8 Safety precautions for special types of danger

### Electrical energy

Only use original batteries with the specified amperage!

Work on electrical parts of the radio choker may only be carried out by a trained electrician.

The electrical equipment of a system must be inspected/checked regularly. Defects like loose connections must be eliminated immediately.

### **Caution!**

### Radio frequencies

Before putting the radio choker into operation, the user is obligated to conduct a test within its immediate proximity to determine whether or not various devices have the same radio frequency.

This especially applies when using two radio choker systems with an immediate proximity to each other.

Should mutual triggering occur during this test, the user should contact the dealer or manufacturer..

## 2.9 Liability

See 3.1

With proper use in accordance with the provisions of the user information, the manufacturer is liable for hazard-free usability.



## 2.10 Liability exclusions

The manufacturer of the radio choker declares that it shall bear no liability for injuries or damage to the operator or others if

- 1) the radio choker is not used properly,
- 2) the operating and maintenance personnel has not read and understood these instructions
- 3) the operating or maintenance personnel is not sufficiently qualified
- 4) the radio chokers are operated under conditions which lie outside the specified limits
- 5) maintenance is not performed on the radio choker at the specified intervals according to the specifications

### 3.0 General Information

#### 3.1 Application, proper use

The radio chokers have been produced by **LUDWIG GIRITZER SYSTEM GmbH & Co KG** for operation on wood transport cable tramways.

The main functions of the radio chokers include:

- 1) fast manual securing of logs on a steel cable (loading)
- 2) automatic releasing of the logs with radio remote control (unloading), whereby triggering can be carried out individually or in groups

These instructions contain the necessary information for the proper use of the radio choker. Your knowledge and observance of this information is a necessary condition for proper use.

#### 3.2 Copyrights

Specific properties and special design features of the radio choker are the intellectual property of the company:

**Katharina Giritzer** (Patent Number 168 5761)  
**Söldenweg 11**  
**83483 Berchtesgaden/Engedey**  
**Germany**

The copyrights to this user information remains with:

**Ludwig System GmbH & Co KG**  
**Fronau 13**  
**83458 Schneizlreuth/Germany**

They may not be reproduced, published or otherwise used for competitive purposes, either in whole or in part.

Their content may not be made known or accessible to persons outside the owner's company by the owner's personnel.

## 4.0 Assembly

### 4.1 General information

The 4 radio chokers (receivers) are assigned 1 colour each (red, blue, green and yellow) on the radio housing (transmitter).

To better distinguish the individual units, the radio chokers must be painted in the respective colours.

### 4.2 Installing steel cable with radio choker

The producer will only ensure the fault-free operation of the radio chokers if:

- 1) an up to 14 mm thick steel cable is routed through on the correct side of the radio choker (see Figure 4.2a) so that the steel nipple is located on the side of the marking
- 2) a steel nipple is pressed onto the end of the steel cable.  
(Marking and steel nipple on one side)

**Caution!**

**Caution:** Following pressing on, the steel nipple must have a diameter of 25-27 mm with a maximum length of 41 mm.

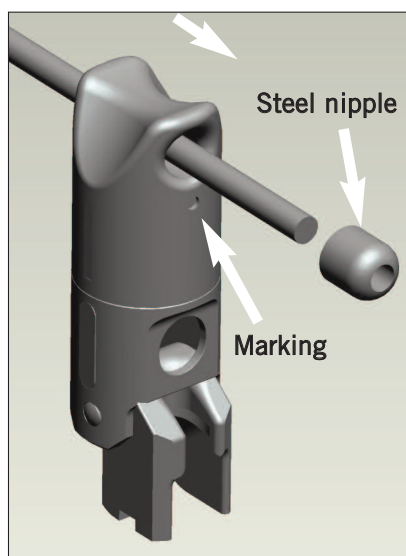


Bild 4.2a

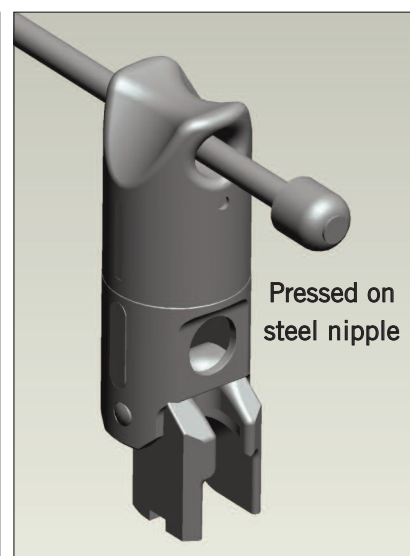


Bild 4.2b

**Caution!**

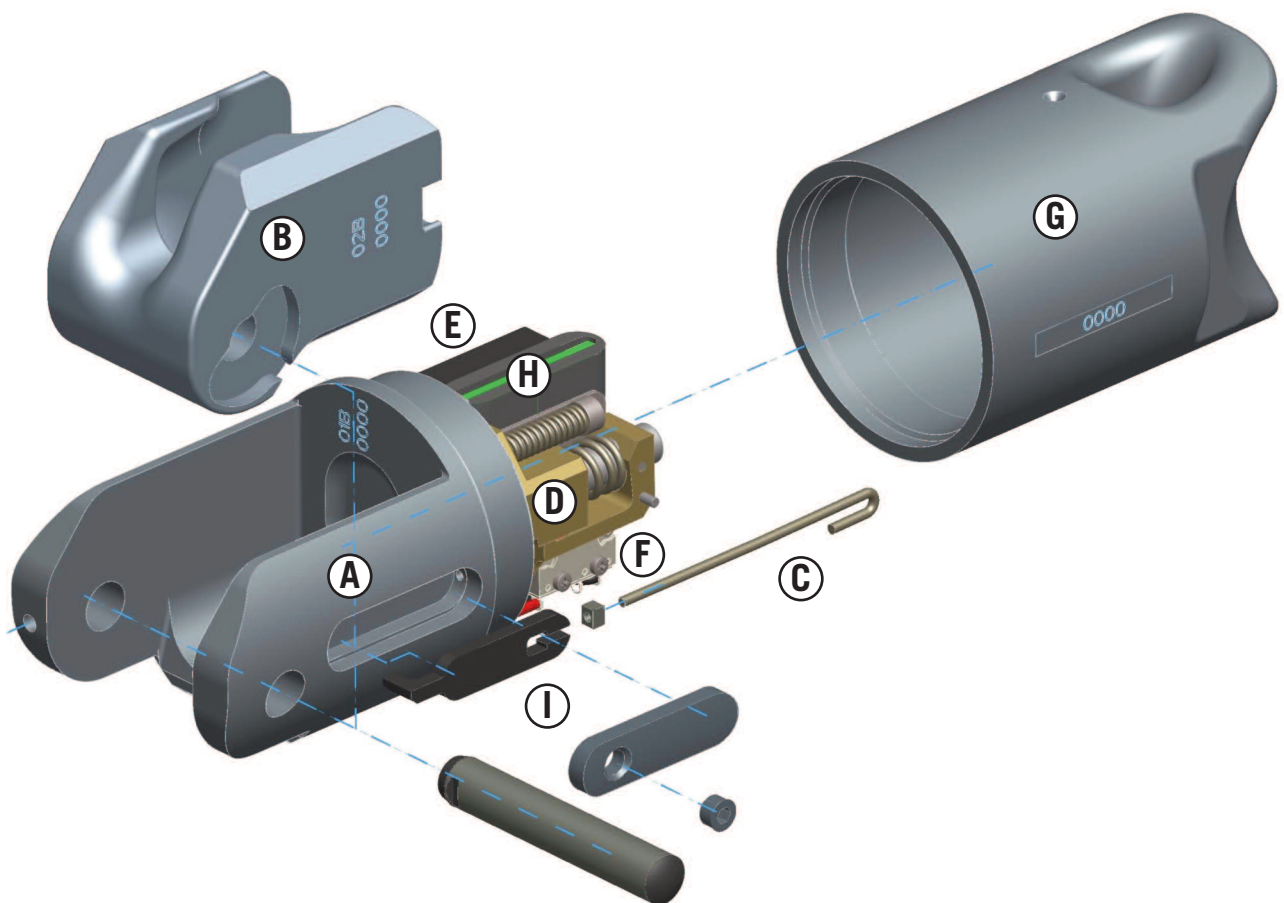
The customer is responsible for the maximum permissible tensile force (LC64: 4,5 to; LC69: 10 to) between the steel nipple and the steel cable!

**Note!**

Recommendation: When pressing the nipple onto the cable, it is sufficient to mount only the cap on the cable. For this purpose, the cap must be separated from the rest of the choker as described in Chap. 7.1.

## 5.0 Component overview

Item	Designation	Function
<b>A</b>	Housing	Housing of all components
<b>B</b>	Clamping pawl	Holder catch for steel nipple of steel rope
<b>C</b>	Connecting rod	Component part of the locking mechanism
<b>D</b>	Locking device	Component part of the locking mechanism
<b>E</b>	Battery	Power supply for the electronics part of the LUDWIG CHOKER
<b>F</b>	Microswitch	Component part of the locking mechanism
<b>G</b>	Cap	Protection for electronics, take-up hole for steel rope
<b>H</b>	Radio receiver electronics	Conversion of radio signal for activation of servo motor
<b>I</b>	Antenna	Reception of radio signal



## 6.0 Operation

### 6.1 Before beginning work

Check whether the cap is firmly screwed onto the housing!  
Check the radio choker for serviceability!

### 6.2 Securing log

The pulling cable must be lowered to shoulder height of the workers by the cable tramway operator at the loading point. Then the work(s) reaches for the radio chokers. Now the pulling cable can be lowered further. Now the choking cable (on which the radio chokers are hanging) can be wrapped around the logs to be suspended and locked.



#### 1) Clamp the radio choker

Press the pawl toward the rear until the clamping mechanism audibly engages and the steel pin in the housing comes out.



#### 2) Lock the radio choker

Press the pawl in the opposite direction into the housing until the locking mechanism audibly engages.

#### 3) Insert nipple into catch



#### 4) Wrap cable around log

Lay the steel nipple in the locked pawl (produce a choking loop)



#### 5) Lash down log

Lash down the steel cable around the log.

**Note!**

As with conventional chokers, the steel cable can be hooked in and unhooked manually!

### 6.3 Transporting logs

Depending on the transport system used, the logs are lifted, transported and laid on the ground at the unloading point.

**Caution!**

The transport route of the logs must be selected so that no persons can be endangered by it!

### 6.4 Setting down logs



No persons may be in the set-down area when setting down the logs and then triggering the radio choker!



Figure 6.4

**Caution!**

Unlocking is not triggered until the load has been set down (unlocking lock).



If the remote control is triggered under load (>100 kg) the accidental release blocking mechanism will keep the choker locked, but only as long as the remaining load exceeds the 100 kg limit value.

As soon as the load weight falls below that threshold, the choker will unlock without any new activation of the remote control.

## 6.5 Painting radio choker

The 4 radio chokers are each assigned a colour by colouring the cap at the factory.



Colour coding of the individual chokers



Assignment of colours to remote control

### **Caution!**

If the colours become worn away, the operator should renew them by means of colour spray!

The antenna slit (A) must not be coated in the process, because that could affect receiver performance.

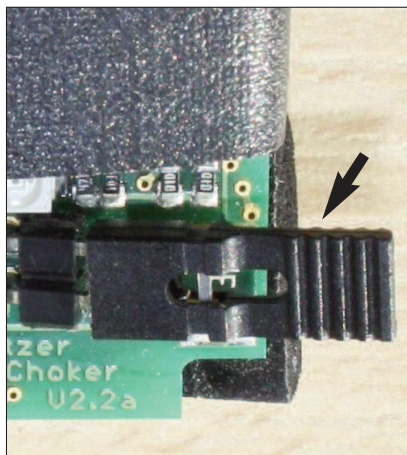
## 6.6 Changing colour coding



**1a) Unscrewing of cap (in vice)**  
 - clamp choker in a vice  
 - unscrew cap with removal tool



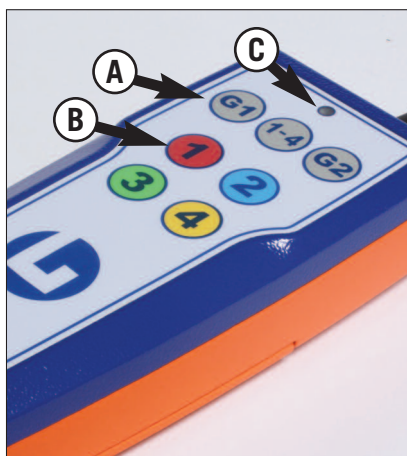
**1b) Unscrewing of cap (on floor)**  
 Use both removal tools for opening.  
 Turn cap in the direction of the arrow.



**2) Clipping on jumper**

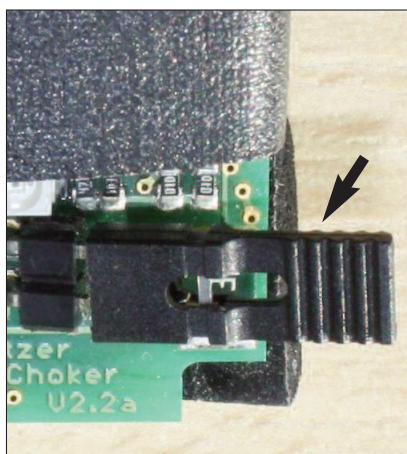


**3) Cocking choker**  
 Press catch backwards until you hear the cocking mechanism engage.



**4) Programming**  
 Press group button **A** and subsequently press colour button **B** (e.g. 1 for red). LED **D** is flashing





5) Removing jumper



6a) Closing of cap in vice  
- clamp choker in vice  
- remount cap



6b) Closing of cap on floor  
Use both removal tools for closing.  
Turn cap in the direction of the arrow.

## 6.7 Choking loop solution -- single

**Example: Release the choking loop on the red radio choker**

First press group button (G1 or G2) and then, within 0.5 sec, the red release button (red choker will open the locking mechanism).



Figure 6.6

The releasing of the locks at the yellow, green and blue choker follows the same procedure.

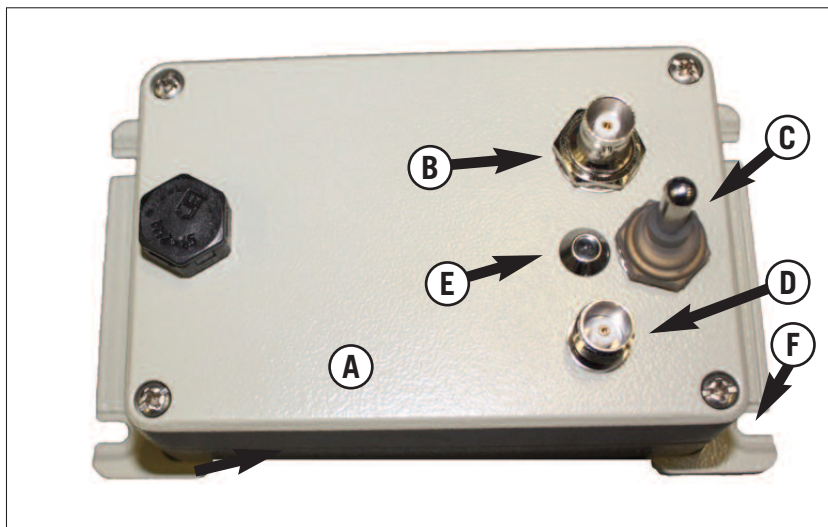
## 6.8 Choking loop solution -- group

**Example: Release the choking loop at all radio chokers of Group 1**

Press the grey button G1 + grey button 1-4 simultaneously.  
(All radio chokers open the locking mechanism).

2nd group: On request, up to 4 additional chokers can also be operated on Group 2. In this case, operation is similar to that for one-group operation. It is only necessary to press the group button G2 instead of G1.

## 6.9 Repeater



Repeater (small illustration: with wire antenna)

Pos.	Description	Task
<b>A</b>	Repeater housing	
<b>B</b>	BNC connector	... for antenna resp. charger unit
<b>C</b>	Toggle switch	On-/Off-switch D
<b>D</b>	Charging connector	... for power supply via carriage
<b>E</b>	LED	Indicator function/battery status
<b>F</b>	Recess	... for fastening magnet

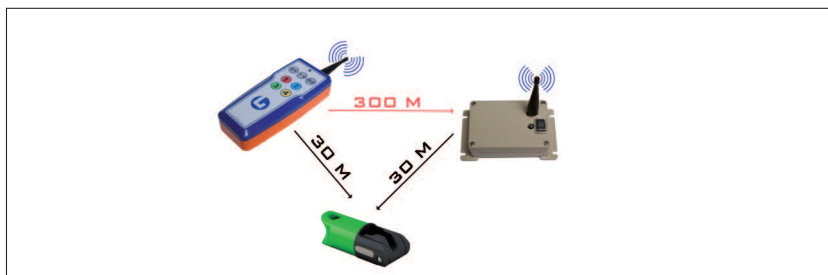
### Function

The repeater can be fastened either to the tip mast (**rod antenna**) or in the carriage (**wire antenna**).

For fastening the repeater the magnets provided by the manufacturer can be used.

Working range transmitter to repeater: 300 m

Working range repeater to LUDWIG CHOKER: 30 m



The repeater comes equipped with a rechargeable battery designed for one week of operation.

### Recharging

Rapid flashing of the LED **Ⓔ** indicates that recharging is required. The rechargeable battery can be connected either via charger unit to the mains socket (220 V, through connector **Ⓕ**) or to the power supply of the carriage (12-24 V, through connector **Ⓖ**).

The repeater should always be switched off by toggle switch in the evenings or during longer break periods (weekends, etc.).

If possible, the repeater should not be stored in discharged condition.



Repeater connected to charger unit

### 6.10 After completing work - releasing radio choker

During work breaks or after the end of work, release the radio chokers, as they do not consume any current in this state, greatly increasing the service life of the batteries! Verify the locking bolt to be released!



Figure 6.8

**Note!**

After the end of work, clean the radio choker and spray the pin/joint with WD 40 or a comparable lubricant!



Figure 6.8

### 6.11 Empty trips



Caution: Do not allow the radio chokers to drag along the ground during empty trips if possible!

**DANGER:** The radio chokers could get caught on the ground and greatly endanger the personnel at the loading point!

## 7.0 Maintenance

### 7.1 Replacing batteries in radio choker

**Note!**

Extremely cold temperatures shorten the service life of the batteries in the radio chokers. The manufacturer recommends storing the radio chokers over night in heated rooms when such conditions prevail.



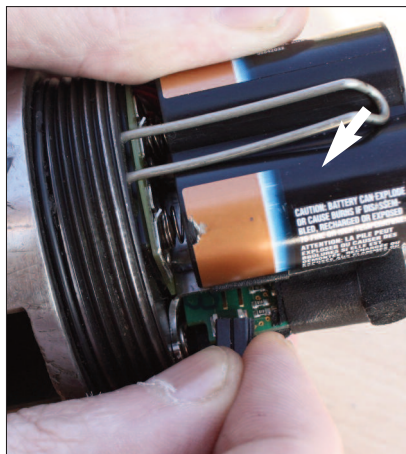
**1a) Unscrewing of cap (in vice)**

- clamp choker in a vice
- unscrew cap with removal tool



**1b) Unscrewing of cap (on floor)**

- Use both removal tools for opening.
- Turn cap in the direction of the arrow.



**2) Exchange battery**

**3) Remount cap**

## 7.2 Replacing batteries in radio housing

- 1) Remove 2 Allen screws

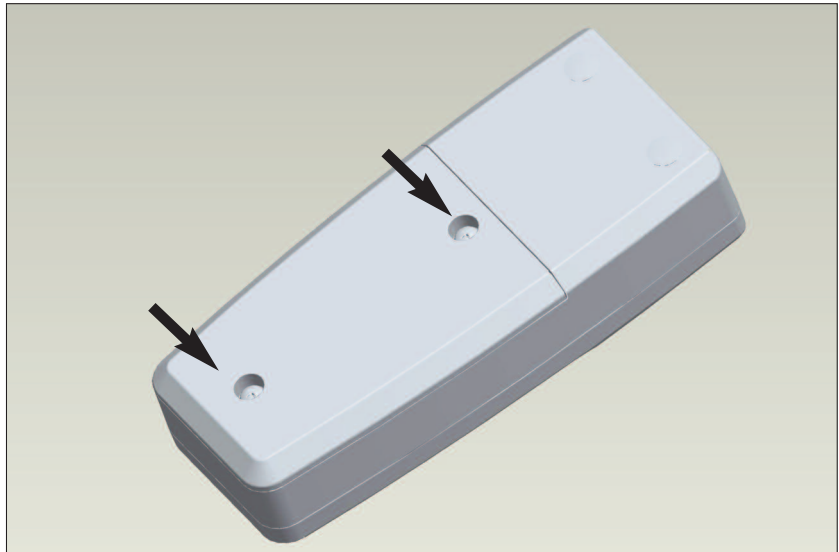


Figure 7.2a

- 2) Remove the battery compartment cover
- 3) Remove the old batteries

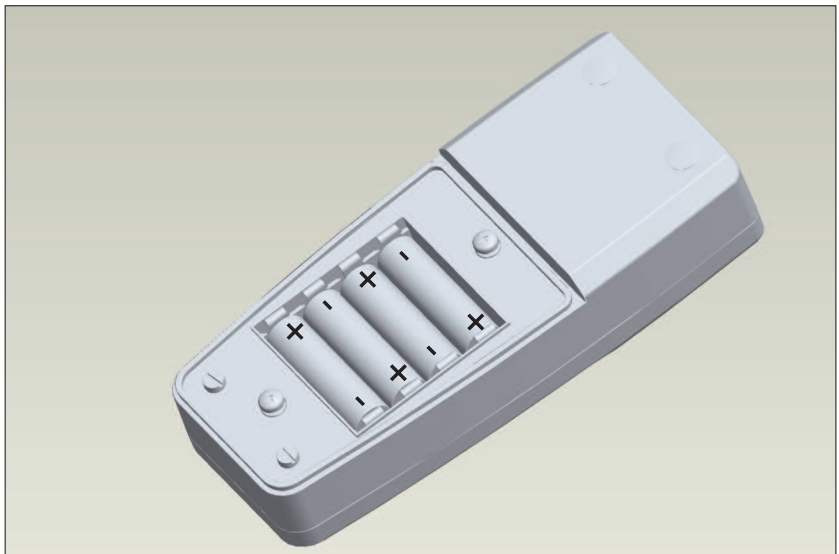


Figure 7.2b

- 4) Fit the new batteries (watch the +/- direction)
- 5) Mount the battery cover and secure it with the Allen screws

### 7.3 Maintenance/lubrication

Interval: 1x monthly or as required (stickiness)

- 1) Remove the screw
- 2) Mount the grease nipple (see Figure 7.3a/b)
- 3) Lightly grease it with ball-bearing grease

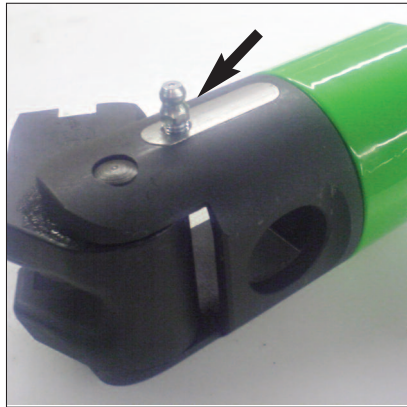


Figure 7.3a



Figure 7.3b

Interval: With heavy soiling, at the latest always after the end of work

- 1) Clean the radio choker and spray the pin/joint with WD 40 or a comparable lubricant!
- 2) Check the smooth movement of the pin and the pawl  
- do not use force when clamping the pawl (possible soiling/ice)



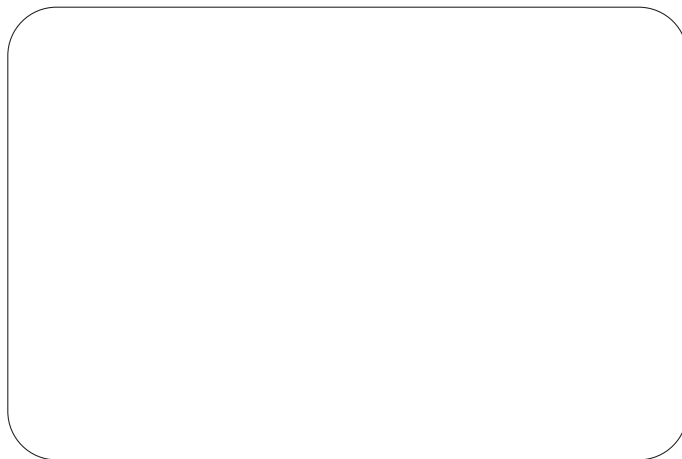
Figure 7.3 c



## 8.0 Troubleshooting

Problem	Possible Causes
A choker cannot be opened	<ul style="list-style-type: none"> <li>- Drained battery in radio choker</li> <li>- Load hanging on hook (unlocking lock)</li> </ul>
All chokers cannot be opened	<ul style="list-style-type: none"> <li>- Choker out of radio-reach</li> <li>- Drained battery in radio housing</li> <li>- Drained battery in all radio chokers</li> <li>- Loading hanging on all radio chokers (safety release blocking mechanism)</li> </ul>
Log is not released (despite choker being triggered)	<ul style="list-style-type: none"> <li>- Cap is loose and therefore twisted (see 4.2a)</li> </ul>
Choker cannot be clamped	<ul style="list-style-type: none"> <li>- Connecting rod (see Page 11) twisted</li> <li>- Soiling in the axis of the claw</li> </ul>

Dealer's Stamp



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