

# ROTHENBERGER

ROCAM 4 Plus  
Charger / Battery

## ROCAM 4 Plus



DE Bedienungsanleitung  
EN Instructions for use  
FR Instruction d'utilisation  
ES Instrucciones de uso  
IT Istruzioni d'uso  
NL Gebruiksaanwijzing  
DA Brugsanvisning  
SV Bruksanvisning  
FI Käyttöohje

PL Instrukcja obsługi  
CS Návod k používání  
TR Kullanım kılavuzu  
HU Kezelési útmutató  
ET Kasutusjuhend läbi  
LT Naudojimo instrukcija  
LV Lietošanas pamācība  
RU Инструкция по использованию  
JA マニュアル



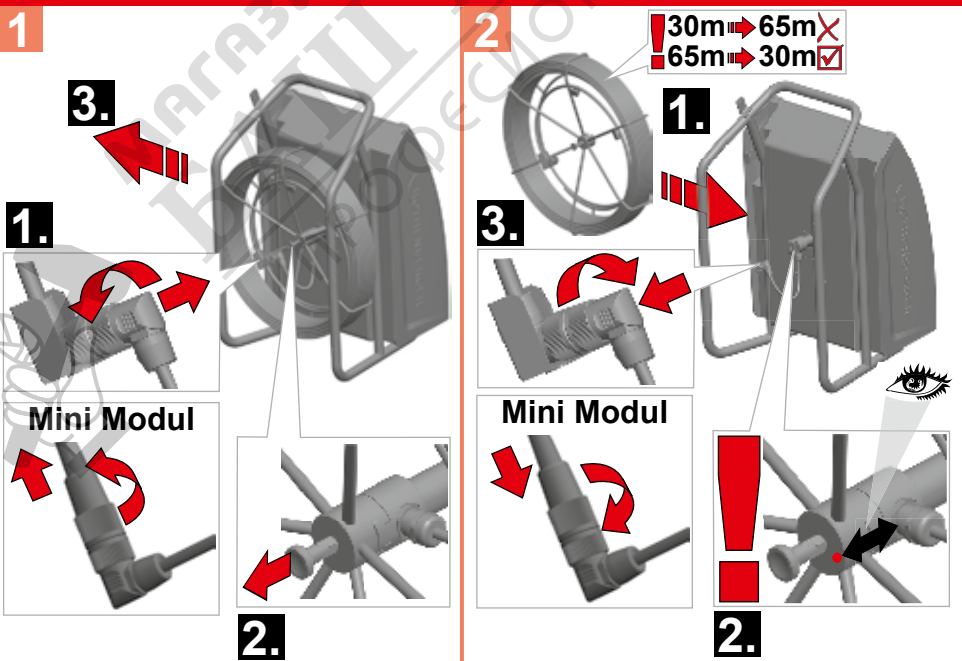
[rothenberger.com](http://rothenberger.com)

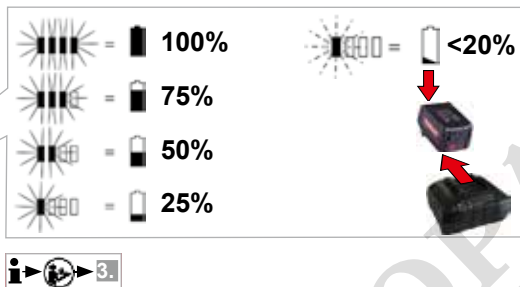
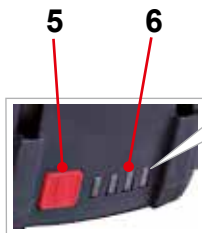
# A Overview

no. 1200001911- basic



# B Replace the reel





Battery	art. no.	U	C	W	Ic	t
RO BP18/2	1000001652	18 V	2,0 Ah	400 g	3 A	40 min
RO BP18/4	1000001653	18 V	4,0 Ah	670 g	3 A	80 min



Charger	art. no.	U1	f1	P1	U2	I2	Nc	W
RO BC14/36 EU	1000001654	220 - 240V	50 - 60Hz	85W	14 - 42V	3,0 A DC	4 - 10	600g
RO BC14/36 AUS	1000001655	220 - 240V	50 - 60Hz	85W	14 - 42V	3,0 A DC	4 - 10	600g
RO BC14/36 USA CND	1000001656	115V	50 - 60Hz	85W	14 - 42V	3,0 A DC	4 - 10	600g
RO BC14/36 UK	1000001691	220 - 240V	50 - 60Hz	85W	14 - 42V	3,0 A DC	4 - 10	600g
RO BC14/36 JP	1000003033	100V	50 - 60Hz	85W	14 - 42V	3,0 A DC	4 - 10	600g

fig. charger and battery similar

# Intro

## EU-KONFORMITÄTSEKLÄRUNG

Wir erklären in alleiniger Verantwortung, dass dieses Produkt mit den angegebenen Normen und Richtlinien übereinstimmt.

## EU-DECLARATION OF CONFORMITY

We declare on our sole accountability that this product conforms to the standards and guidelines stated.

## DECLARATION EU DE CONFORMITÉ

Nous déclarons sous notre propre responsabilité que ce produit est conforme aux normes et directives indiquées.

## DECLARACION DE CONFORMIDAD EU

Declaramos, bajo nuestra responsabilidad exclusiva, que este producto cumple con las normas y directivas mencionadas.

## DICHARAZIONE DI CONFORMITÀ EU

Dichiariamo su nostra unica responsabilità, che questo prodotto è conforme alle norme ed alle direttive indicate.

## EU-KONFORMITEITSVERKLARING

Wij verklaren in eigen verantwoordelijkheid dat dit product overeenstemt met de van toepassing zijnde normen en richtlijnen.

## EU-KONFORMITETSEKLÆRING

Vi erklærer som eneansvarlig, at dette produkt er i overensstemmelse med anførte standarder, retningslinjer og direktiver.

## EU-FÖRSÄKRAN

Vi försäkrar på eget ansvar att denna produkt uppfyller de angivna normerna och riktlinjerna.

## TODISTUS EU-STANDARDINMUKAISUUDESTA

Todistamme täten ja vastaamme yksin siitä, että nämä tuote on alluuteltujen standardien ja standardomisasiakirjojen vaatimusten mukainen.



### ROCAM 4 Plus:

2014/30/EU, 2014/35/EU, 2014/53/EU,  
2011/65/EU, DIN EN 62368-1, DIN EN 61326-1,  
EN 301 489-17 V3.2.2, EN 300 328 V2.1.1

Herstellerunterschrift

Manufacturer/ authorized representative signature

ppa. Thorsten Bühl  
Director Corporate  
Technology

i.A. Maximilian Gottschalk  
Teamleader Product  
Approval & Patents

Kelkheim, 09.03.2017

Technische Unterlagen bei/ Technical file at:  
ROTHENBERGER Werkzeuge GmbH  
Spessartstraße 2-4  
D-65779 Kelkheim/Germany

## DEKLARACJA ZGODNOŚCI EU

Oświadczamy z pełną odpowiedzialnością, że produkt ten odpowiada wymaganiom następujących norm i dokumentów normatywnych.

## EU-PROHLÁŠENÍ O SHODI

Se vši zodpovedností prohlašujeme, že tento výrobek odpovídá následujícím normám a normativním dokumentům.

## EU UYGUNLUK BEYANI

Tek sorumlu olarak bu ürünün yönetmelik hükümleri uyarınca apađıdaki normlara ve norm dokümanlarına uygunluđunu beyan ederiz.

## EU-AZONOSSÁGI NYILATKOZAT

Teljes felelősségünk tudatában kijelentjük, hogy jelen termék megfelel a következő szabványoknak vagy szabványossági dokumentumoknak.

## EL VASTAVUSDEKLARATSIOON

Me deklareerimine ainuisikuliselt vastutades, et kõnealune toode ühildub esitatud normide ja direktiividega.

## EU ATITIKTIES DEKLARACIJA

Prisiimdami visą atsakomybę deklaruojame, kad šis gaminyš atitinka visus nurodytus standartus ir direktyvas.

## ES ATBILSTĪBAS DEKLARĀCIJA

Mēs uz savu atbildību darām zināmu, ka šī prece atbilst norādītajiem standartiem un direktīvām

## ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ СТАНДАРТАМ EU

Мы заявляем что этот продукт соответствует следующим стандартам.

## EU 適合宣言

当社は自らの責任において、本製品が上記の規格およびガイドラインに適合していることを宣言します。



### Charger:

2014/35/EU, 2014/30/EU, 2011/65/EU, EN 60335-1,  
EN 60335-2-29, EN 55014-1, EN 55014-2,  
EN 61000-3-2, EN 61000-3-3, EN 50581

Herstellerunterschrift

Manufacturer/ authorized representative signature

ppa. Thorsten Bühl  
Director Corporate  
Technology

i.A. Maximilian Gottschalk  
Teamleader Product  
Approval & Patents

Kelkheim, 01.09.2018

Technische Unterlagen bei/ Technical file at:  
ROTHENBERGER Werkzeuge GmbH  
Spessartstraße 2-4  
D-65779 Kelkheim/Germany

# Intro

<b>DEUTSCH - Originalbetriebsanleitung!</b> Bedienungsanleitung bitte lesen und aufbewahren! Nicht wegwerfen! Bei Schäden durch Bedienungsfehler erlischt die Garantie! Technische Änderungen vorbehalten!	<b>Seite 2</b>
<b>ENGLISH</b> Please read and retain these directions for use. Do not throw them away! The warranty does not cover damage caused by incorrect use of the equipment! Subject to technical modifications!	<b>Page 19</b>
<b>FRANÇAIS</b> Lire attentivement le mode d'emploi et le ranger à un endroit sûr! Ne pas le jeter! La garantie est annulée lors de dommages dus à une manipulation erronée! Sous réserve de modifications techniques!	<b>Page 36</b>
<b>ESPAÑOL</b> ¡Por favor, lea y conserve el manual de instrucciones! ¡No lo tire! ¡En caso de daños por errores de manejo, la garantía queda sin validez! Modificaciones técnicas reservadas!	<b>Página 54</b>
<b>ITALIANO</b> Per favore leggere e conservare le istruzioni per l'uso! Non gettarle via! In caso di danni dovuti ad errori nell'uso, la garanzia si estingue! Ci si riservano modifiche tecniche!	<b>Pagina 72</b>
<b>NEDERLANDS</b> Lees de handleiding zorgvuldig door en bewaar haar goed! Niet weggooien! Bij schade door bedieningsfouten komt de garantieverlening te vervallen! Technische wijzigingen voorbehouden!	<b>Bladzijde 90</b>
<b>DANSK</b> Læs betjeningsvejledningen, og gem den til senere brug! Smid den ikke ud! Skader, som måtte opstå som følge af betjeningsfejl, medfører, at garantien mister sin gyldighed! Ret til tekniske ændringer forbeholdes!	<b>Side 107</b>
<b>SVENSKA</b> Läs igenom bruksanvisningen och förvara den väl! Kasta inte bort den! Garantin upphör om apparaten har använts eller betjänats på ett felaktigt sätt! Med reservation för tekniska ändringar!	<b>Sida 124</b>
<b>SUOMI</b> Lue ja säilytä tämä käyttöohje! Älä heitä pois! Takuu ei kata käyttövirheistä aiheutuvia vahinkoja! Oikeudet teknisiin muutoksiin pidätetään!	<b>Sivulta 141</b>
<b>POLSKI</b> Instrukcję obsługi proszę przeczytać i zachować! Nie wyrzucać! Przy uszkodzeniach wynikających z błędów obsługi wygasa gwarancja! Zmiany techniczne zastrzeżone!	<b>Strony 158</b>
<b>ČESKY</b> Navod k obsluze si prosím přečtěte a uschovejte jej! Nevyhazujte jej! V případě poškození způsobenem chybnou obsluhou zanika záruka! Technické změny jsou vyhrazeny!	<b>Stránky 176</b>
<b>TÜRKÇE</b> Kullanım açıklmalarını lütfen dikkatlice okuyunuz ve bir yerde muhafaza ediniz! Çöpe atmayınız! Kullanımında yapılan hatalar, garantinin silinmesine neden olur! Teknik deðişiklikler yapma hakkımız saklıdır!	<b>Sayfa 194</b>
<b>MAGYAR</b> Kérjük, olvassa el és őrizze meg a kezelési utasítást! Ne dobja el! A helytelen kezelésből származó károsodások esetén megszűnik a jótállás! Műszaki változtatások fenntartva!	<b>Oldaltól 211</b>
<b>ESTU</b> Palun lugege kasutusjuhend läbi ja hoidke alles! Ärge visake ära! Kä-siteemisvigadest tingitud kahjustuste korral kaotab garantii kehtivuse! Oigus tehnilisteks muudatusteks reserveeritud!	<b>Lehekülj 229</b>
<b>LIETUVOS</b> Perskaitykite naudojimo instrukciją ir pasilikite ją! Neišmeskite! Garan-tija nebus taikoma gedimams, atsiradusiems dėl netinkamo naudojimo! Pasilieka ma teisė daryti techninius pakeitimus!	<b>Pusla-pis 246</b>
<b>LATVIEŠU</b> Lūdzu, izlasiet un uzglabāiet lietošanas instrukciju! Nemest prom! Ja ir bojājumi ekspluatācijas kļūdas dēļ, garantija zaudē spēku! Paturēt tehniskas izmaiņas!	<b>Lappuse 263</b>
<b>РУССКИЙ</b> Прочтите инструкцию по эксплуатации и сохраняйте её для дальнейшего использования! В случае поломки инструмента из-за несоблюдения инструкции клиент теряет право на обслуживание по гарантии! Возможны технические изменения!	<b>Страница 280</b>
<b>日本語</b> 操作説明書は目を通したあと、保管してください！捨ててはいけません！操作を誤ったために生じた損害に対しては、保証は行ないません！本装置に対する技術上の変更により説明書の内容に一致しない場合があります！	<b>ページ317</b>

<b>1</b>	<b>Safety Notes .....</b>	<b>20</b>
1.1	Intended use.....	20
1.2	General Power Tool Safety Warnings.....	21
1.3	Special safety instructions .....	23
<b>2</b>	<b>Technical data ROCAM 4 Plus .....</b>	<b>24</b>
<b>3</b>	<b>Technical Data charger and battery (C).....</b>	<b>25</b>
<b>4</b>	<b>Function of the Unit .....</b>	<b>25</b>
4.1	Overview (A).....	25
4.2	Working notes .....	25
4.3	Changing the battery .....	25
4.4	Working with the device.....	25
4.5	ROCAM positioning .....	26
4.6	Monitor unit with touchscreen .....	27
4.7	User interface start up screen.....	27
4.8	Picture / Video mode .....	28
4.9	User interface operating elements .....	29
4.9.1	Using the ROCAM 4 Plus app .....	32
4.9.2	Data transmission to a PC .....	33
4.10	Replace the reel (B).....	33
4.11	Charger and battery (C).....	34
<b>5</b>	<b>Care and Maintenance .....</b>	<b>35</b>
<b>6</b>	<b>Accessories.....</b>	<b>35</b>
<b>7</b>	<b>Customer service.....</b>	<b>35</b>
<b>8</b>	<b>Disposal.....</b>	<b>35</b>

**Markings in this document:**



**Markings in this document!**

This sign warns against the danger of personal injuries.



**Caution!**

This sign warns against the danger of property damage and damage to the environment.



**Call for action**



**FCC-Statement (Class A, Group 1)**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

**Federal Communications Commission Statement**

NOTE – This equipment has been tested and found to comply with the limits for a Class A , Group 1 digital device, pursuant to Part 15 of the FCC Rules. These limit values were designed to provide adequate protection against faults occurring during operation in industrial areas. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technicians for help.

**Class A, Group 1 Note**

**Warning** – This is a Class A, Group 1 product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

**1.1 Intended use****ROCAM 4 Plus:**

The ROCAM 4 Plus TV inspection system is solely for inspecting empty, clean pipes, hollow cavities and hollow spaces, as indicated under Technical data. Other uses are discouraged.

Do not leave camera heads in the sun for extended periods. This can damage the camera module! All applicable standards and regulations must be observed.



This tool is only suitable for indoor use. Never expose tool to rain!

Among others, these particularly include:

- Laws on technical equipment (Equipment Safety Act) and associated regulations
- Low Voltage Directive
- UVV VBG 1 „General regulations“
- UVV VBG 4 „Electrical systems and equipment“
- Guidelines for work in containers and confined spaces (BG rule 77), Guideline for work-stations.

Use only original ROTHENBERGER or CAS (Cordless Alliance System) battery packs and accessories.

**Charger and battery:**

The chargers are only suitable for charging ROTHENBERGER and CAS (Cordless Alliance System) battery packs.

This tool is not designed for use by persons with physical, sensory or mental disabilities, or with insufficient experience and/or knowledge, unless they are supervised by a person responsible for their safety, or have received instructions on how to use the tool by this person.

Never attempt to charge batteries that are not rechargeable. Danger of explosion!

Battery packs marked with CAS are 100% compatible with CAS devices (Cordless Alliance System). To select the appropriate device, please contact your ROTHENBERGER dealer. Read the relevant instructions for the devices used.



**WARNING! Read all safety warnings, instructions, illustrations and specifications provided with this power tool.**

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

**Save all warnings and instructions for future reference.**

The term "power tool" in the warnings refers to your electrically-operated (corded) power tool or battery-operated (cordless) power tool.

### 1) Work area safety

- a) **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.
- b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- c) **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

### 2) Electrical safety

- a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- b) **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges and moving parts.** Damaged or entangled cords increase the risk of electric shock.
- e) **When operating a power tool outdoors only, use an extension cords suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- f) **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

### 3) Personal safety


- a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A momentary lack of attention while operating power tools may result in serious personal injury.
- b) **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- c) **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.

- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.
- h) **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.

#### 4) Power tool use and care

- a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- b) **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c) **Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- e) **Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **Use the power tool, accessories and tool bits etc., in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.
- h) **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

#### 5) Battery tool use and care

- a) **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- b)  **WARNING! Use power tools only with specifically designated battery packs and respectively battery types.** Use of any other battery packs may create a risk of explosions, injury and fire.
- c) **When battery pack is not in use, keep it away from other metal objects like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another.** Shorting the battery terminals together may cause burns or a fire.
- d) **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.** Liquid ejected from the battery may cause irritation or burns.
- e) **Do not use a damaged or modified battery.** Damaged or modified batteries can behave unexpectedly and lead to fires, explosions or injuries.
- f) **Do not expose a battery for fire or high temperatures.** Fire or temperatures above 130°C (265°F) can cause an explosion.
- g) **Follow all the instructions for charging and never charge the battery or the cordless tool outside the temperature range specified in the operating instructions.** Incorrect charging or charging outside the permitted temperature range can destroy the battery and increase the fire risk.

#### 6) Service

- a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.
- b) **Never service damaged batteries.** All maintenance of batteries should only be carried out by the manufacturer or authorised customer service points.

### 1.3 Special safety instructions

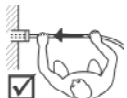
#### **ROCAM 4 Plus:**

Wear proper work clothes, work gloves, safety glasses and safety shoes.

Do not perform any work inside the device! Only trained technical personnel (customer service) are allowed to work in this area!

It is prohibited to use the TV inspection system for medical uses of any sort!

Do not use force to pull the camera head and reel cable out of the pipe!



Always set the pipe cable next to the "axis"; otherwise there is a risk of injury!

The reel cable is rigid and is therefore under mechanical stress! Hold firmly when unwinding from the reel!

Keep a firm footing.

According to UVV, the minimum distance must be 50 cm (average 64 cm)!



Before each use, check the reel cables for damage. Damaged reel cable must be replaced! Contact with electrically charged live parts can be fatal!

#### **Charger and battery:**

This charger is not intended for use by children and persons with physical, sensory or mental limitations or a lack of experience or knowledge. This charger can be used by children aged 8 and above and by persons who have physical, sensory or mental limitations or a lack of experience or knowledge if a person responsible for their safety supervises them or has instructed them in the safe operation of the charger and they understand the associated dangers. Otherwise, there is a danger of operating errors and injuries.

Supervise children during use, cleaning and maintenance. This will ensure that children do not play with the charger.

Do not charge non-rechargeable batteries.



Danger - electrical voltage!!



Only use the charger indoors!



Protect the charger from moisture!

Never allow children to use the machine. Children should be supervised to ensure that they do not play with the tool.

Keep children away from the battery charger and the working area!

Keep your battery charger out of reach of children!

Pull out the mains plug immediately if the battery charger starts to smoke or flames emerge!

Do not insert objects into the ventilation slots on the battery charger – there is a danger of electric shocks and short circuits!

Do not recharge a fully charged battery pack!



Protect battery packs from water and moisture!



Do not expose battery packs to naked flame!

Do not use faulty or deformed battery packs!

In areas with high metal dust exposure do not load any battery packs with AIR COOLED chargers.

Do not open battery packs!

Do not touch or short-circuit battery packs!



Slightly acidic, flammable fluid may leak from defective Li-ion battery packs!



If battery fluid leaks out and comes into contact with your skin, rinse immediately with plenty of water. If battery fluid leaks out and comes into contact with your eyes, wash them with clean water and seek medical attention immediately!

**Transporting li-ion battery packs:** The contained lithium-ion batteries are subject to the Dangerous Goods Legislation requirements. The user can transport the batteries by road without further requirements. When being transported by third parties (e.g.: air transport or forwarding agency), special requirements on packaging and labelling must be observed. For preparation of the item being shipped, consulting an expert for hazardous material is required. Only send the battery pack if the housing is intact and no fluid is leaking. Remove the battery pack from the machine for sending. Prevent the contacts from short-circuiting (e.g. by protecting them with adhesive tape).

Dispatch batteries only when the housing is undamaged. Tape or mask off open contacts and pack up the battery in such a manner that it cannot move around in the packaging. Please also observe possibly more detailed national regulations.

## 2 Technical data ROCAM 4 Plus

Battery voltage.....	18 V DC
Rated power consumption .....	16 W
Working temperature .....	-10 ... +50 °C
Storage temperature.....	-30 ... +50 °C
Dimensions (L x W x H, mm) .....	560 x 400 x 340
Weight (with battery).....	18,6 kg / 22,4 kg (30m/ 65m slide cable length)
Monitor .....	Touchscreen 10.4"
Picture/Video format .....	JPG / AVI (resolution 720px. x 600px.)
Video Out .....	Micro HDMI
Memory capacity.....	4 GB SD-card (max. 32 GB)
Camera module .....	CMOS colour PAL
Camera head diameter .....	ø 30 mm, ø 40 mm (optional ø 25 mm Mini Modul)
Slide cable length .....	30 m / 65 m (optional 8 m Mini Modul)

Slide cable diameter .....ø 7.0 mm / ø 8.0 mm (optional ø 5,5 mm Mini Modul)

Working range .....Ø 40 - 100 mm (optional Mini Modul)  
Ø 70 - 150 mm (30 mm camera head)  
Ø 100 - 300 mm (40 mm camera head)

Positioning transmitter .....33 kHz (bolt-on optional)

Protection class camera head.....IP 68

Included in delivery: ROCAM 4 Plus TV- inspection system with Camera head ø30 mm or ø40 mm, guide ball, positioning transmitter 33 kHz, USB cable, test adaptor, manual, 4 GB SD card, battery and charger.

### 3 Technical Data charger and battery

(C)

#### **Battery:**

U = Voltage

C = Capacity

W = Weight

Ic = Charge current

t = Approx. charging time (90% full)

Charging voltage.....20,75 V DC

Charging temperature.. 0° - 50° C, 32° - 122° F

Max. discharging

temperature.....5° - 50° C, 41° - 122° F

Recharge battery pack before first use!

#### **Charger:**

U1 = Input voltage

f1 = Input frequency

P1 = Input power

U2 = Charging voltage

I2 = Max. charge current

Nc = No. of battery cells

W = Weight



Pay attention to the electrical outlet voltage! Check the label on the bottom of the charger!

### 4 Function of the Unit

#### 4.1 Overview


(A)

1	Camera head	7	Monitor unit
2	Positioning probe	8	Reel
3	Bending spring	9	Frame
4	Reel cable	10	Holder / Bracket
5	Rear flap	11	Guide hook
6	Front flap	12	ROCAM 4 Plus - AC - adapter

#### 4.2 Working notes

- Do not bend the reel cable! The cable may break!

- Do not pull the reel cable over sharp edges! The cable may become damaged!

 ATTENTION! Always protect ROCAM 4 Plus against water, and use only recommended indoors. Only the camera head (1) and reel cable (4) may come into contact with water!

#### 4.3 Changing the battery

→ Open the rear cover (5).

→ Insert the battery into the compartment on the right side of the accessory compartment until it clicks. To remove, press the locks and pull the battery out.

#### 4.4 Working with the device



Wear protective clothing! Always stand next to the reel cable!

→ Push reel cable (4) with bending spring (3) from the holder (10) / reel (8) take and remove cap.

→ Remove the cap from the camera head (1) and screw on the bending spring (3).

! Caution: Check for cleanliness and damage!

- If necessary, additional accessories can be attached to camera. When using pipe diameters greater than 70 mm, always use guide body!
- Clean the pipe system before inspection.
- Press button on the bottom cover (6), open the cover. Hold the door during opening.
- Turn the device on with the Power-button, located bottom front center of the monitor (7). The monitor unit (7) can be removed from the basic device for optimal viewing angle.

! Excessive pressure on the touch screen may damage the monitor unit!

- Remove the camera head (1) from the holder (10) and pull the cable (4) from the reel (8). The cable is rigid and is under mechanical stress. Therefore, hold it firmly when unwinding from the reel. By pressing in the holder / bracket (10), it can be clamped!
- Guide the camera head (1) into the pipe system and carefully push it with the cable (4). Caution: Unwinding the reel too quickly may cause it to continue to spin.
- For optimal results, a camera head (SL40) with a stronger light yield up to DN300 can be screwed on. Camera heads are interchangeable.

! Do not pull the cable (4) over sharp edges, and do not bend it!! Check the camera cable before each use for damage!

! While it is being pushed, the cable (4) may loop: Breakage may result!!

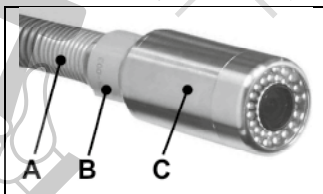
During advancement through several pipe bends, the camera image is always upright.

- After work is finished, pull the cable (4) out of the pipe and push it directly onto the reel (8). Remove coarse dirt and water with a rag while winding cable on reel.
- Clean thoroughly (see section 5).
- Dismantle camera head (1) and accessories, plug cap and insert bending spring (3) with reel cable (4) into the reel (8).
- Camera head (1) and accessories should be cleaned and safely stored.
- Close the flap.

! Camera head and accessories must be cleaned after each use, dismantled and stored safely. Abnormal transport of the camera head can cause damage!

- Check the camera head regularly the camera head (1) for leaks. For this purpose, screw the test adaptor on the camera head, applying a maximum pressure of 1 bar by an air pump with pressure indicator. If this test indicates a drop in pressure, replace camera head.

#### 4.5 ROCAM positioning



The grey, cylinder-shaped positioning probe (B) can be screwed by hand between the camera head (C) and the bending spring (A). Only finger tight, to avoid damaging threads!

The positioning probe emits magnetic fields that are received by the positioning receiver and are transformed visually and audibly.

The 33 kHz measuring system can penetrate masonry, stone, wood and plastic.

The intensity of the signal changes depending on the position and distance from the receiver.

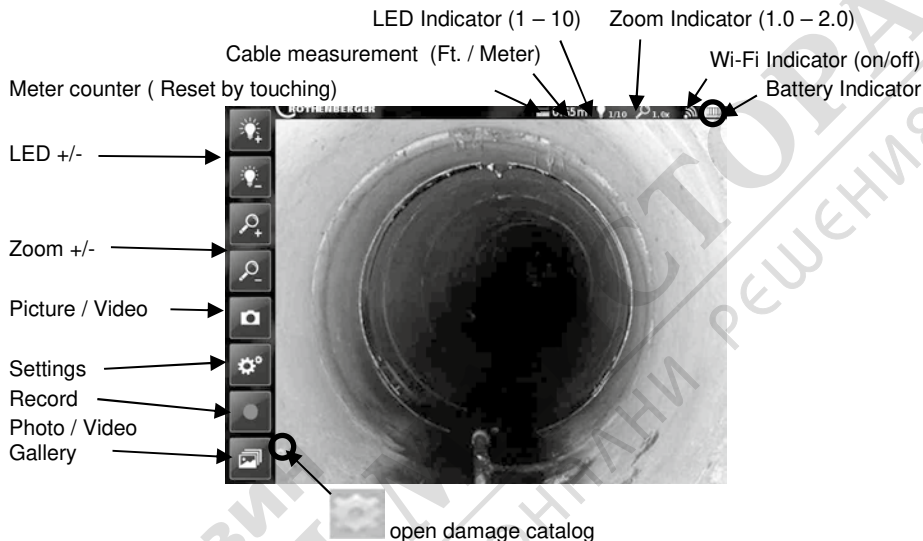
#### 4.6 Monitor unit with touchscreen



The ROCAM 4 Plus comes with a 4GB SD card to save photo's and video's. This can be removed for data transfer. Connections Micro-HDMI, mini USB and SD card are on the side of the monitor unit.

Only use a screened USB cable to make a connection between ROCAM 4 Plus and a computer!

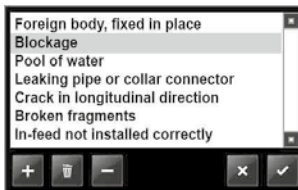
#### 4.7 User interface start up screen



Choose the type of damage in the damage catalog and confirm . This will be shown in the left bottom of the screen, and also by saving images/videos:

##### Setting up damage catalog:

- Foreign body, free
- Blockage
- Pool of water
- Leaking pipe or collar connector
- Crack in longitudinal direction
- Crack in transverse direction
- Broken fragments
- In-feed not installed correctly
- Laid incorrectly
- Wear, mechanical
- Wear, corrosive
- Encrustation
- Deformation



- + Add a new damage
- trash Delete damage
- switch off damage
- X back
- checkmark confirm

##### Battery Indicator:

Colour white:



Up to 100%, up to 20% battery capacity, mains network operation

Colour red:



Battery empty,



battery temperature exceeds the operating temperature (-10° to 50°C)



If the ROCAM 4 Plus is used outside the specified operating temperature range, faults can occur on the screen! The ROCAM 4 Plus may switch itself off autonomously!

#### 4.8 Picture / Video mode

- Select picture mode or video mode .
- Touch the record picture / video button . Touch the stop video button . Data is automatically saved as a jpg, avi, or wav files.
- Open photo / video gallery and select required photo / video (only if SD-card is installed in monitor).
- Scroll left or right , to select saved pictures or Videos.

#### Video mode:



Play saved video



Pause. Video stops and the current view can be edited and then saved (s. photo mode)



File naming



Delete video's. Confirm with yes or no / back

#### Photo mode:



Audio annotation for selected photo.



Stop audio Annotation



Play saved audio annotation



Pause



Marking Mode / Drawing on Saved Images



Drawing arrows (touch button / then draw arrow with stylist / drag to relocate)



Drawing circles (touch button / then draw circles with stylist / drag to alter size and/or relocate)



Add text to saved pictures from the damage catalog



Choose color of the text/drawing



Save photo (photo is automatically renamed, original remains)



Touch arrow (or) circle / touch delete button to remove arrow (or) circle



### File Naming / Text Annotation



Folder Name Will Appear in the Top Tool Bar  
(Don't use special characters)

Done button saves title



Delete pictures. Confirm  yes or  no / back



Delete audio file from saved pictures. Confirm  yes or  no / back



Return to photo / video gallery



Return to live screen

### 4.9 User interface operating elements



### Tools menu

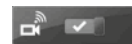
FW (Firm Ware Version)  
IP (IP Address)  
Wi-Fi (SSID / Hot Spot)



13:01 Set time



Wi-Fi (on / off)



Live image Streaming



10.07.2014 Set date



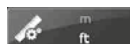
Language



Remove SD card



Time / Date Stamp (On / Off)



Unit of measure (feet / meter)



0 min. 10 min. 20 min. Auto Shut Off (0 / 10 / 20 / 30)



Voice recording for Video (on / off)



LCD Brightness



Folder Options



Format / Wipe SD Card



Reset damage Catalog to presetting

**Set Time:**



Set hour / minute / second by using + / - buttons. Saving with  or cancel .

hour / minute / second



**Set date:**



Set month / day / year by using + / - buttons. Saving with  or cancel .

day / month / year



**Time / date stamp:**

Optional time / date stamp when saving photo's/video's



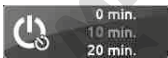
on



off



**Auto shut off:**



Set the unit to automatically turn off after 0, 10, 20, or 30 minutes

**LCD Brightness:**



Select from 5 different brightness levels for optimum viewing

**Format / Wipe (4G) SD Card:**



Formatting will erase all saved images and/or video only in folder ROCAM 4 Plus on SD card.

**Not other Saved Data!** Confirm with  yes or  no / back

**Wi-Fi on / off:**

Wireless Hot Spot with ROCAM 4 Plus Device on/off



on



off

- Download to transmit data to a smartphone/tablet App in iOS/App Store or Android/Play Store (for use of the app see 4.9.1).

**Language Selection:**



Following languages are available:  
DE, EN, ES, FR, IT, NL, PT, DA, SV, FI, PL, CS, TR, HU, SLO, RU, BG, GRI, RU, CHI, JA, AR, HI

**Unit of Measure:**



Choose between „meter ” or “feet”:  
m = meter, ft.= feet

**Voice recording:**

Optional recording of audio with video / photo.



on



off

**Folder Options:**



add folder,



rename,



delete



confirm,



no – back to operating elements

Folders and subfolders can now be renamed or added, based on the time and date.

**Add folder:**



Touch add button to open key board. Type in folder name in text box. Done button saves title. (Don't use special characters)



**Re-Name existing folders:**



Touch existing folder or sub folder and touch re-naming button. Existing folder name appears in the text box and can be renamed. (Don't use special characters) .Done button saves title.

Note: Pictures and videos are saved in a folder created daily. To look at older recordings, select the appropriate folder.



Back to operating elements

**Live image streaming:**



on



off

### Reset damage catalog to presetting:



**Note:** Only the selected language will be restored



Back to live screen



### Remove SD card safely:



Push button before removing SD card. Otherwise already stored data on the SD card could be lost.

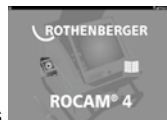
#### 4.9.1 Using the ROCAM 4 Plus app



- Switch on both wifi functions over the system settings of ROCAM 4 Plus




- Using the settings of the Android/ iOS device, connect with the network "rocam4\_hotspot". The password for this is: "letrocam4in".
- After making the configuration, leave the system settings of ROCAM 4 Plus and switch to Livebild.

- Open the app on the Android/ iOS device. This image appears



Here one can select between the live picture transmission  and viewing the recordings which have been made over the app  (pictures/videos).

- Create the desired pictures/videos over live picture transmission .










Under Recordings  there appears the list of all of the photos and videos taken. Tap on the desired file and it will open and can therefore be viewed or processed.

The selected picture is displayed in close-up. One can select from 3 options:









- |    | <u>Android device</u>   | <u>iOS device</u>   |                               |
|----|---|---|-------------------------------|
| 1. |  Microphone (audio commentary) |  | Microphone (audio commentary) |
| 2. |  Image processing              |  | Image processing              |
| 3. |  Split                         |  | Split                         |

The processing menu appears after "Image processing" was selected.

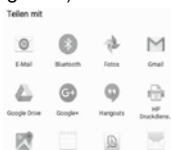
Android device

-  Retrogressive
-  Restore
-  Colour palette
-  Save
-  Select the stylus for processing:
  -  Stylus
  -  Eraser
  -  Text
  -  Styles

iOS device

-  Retrogressive
-  Restore
-  Colour palette
-  Save
-  Stylus
-  Eraser
-  Text
-  Styles


To transmit this one returns to the previous menu and selects the "Share" option (dependent on the installed programs).



Android device

iOS device

**4.9.2 Data transmission to a PC**

- ➔ Switch on the wifi function over the system settings of ROCAM 4 Plus 



The SD card of the ROCAM 4 Plus must be inserted!!

- ➔ Switch on the wifi function on the PC and connect with the wireless network "roc-am4\_hotspot". The network security key required to make the connection is: "letrocam4in".
- ➔ Open the respective browser on the PC and enter the IP address of the ROCAM 4 Plus <http://192.168.5.1>.

One is now automatically connected with the existing ROCAM 4 Plus directories and can view the desired pictures and videos.

Proceed as one would normally to save the one or the other on the PC.

**4.10 Replace the reel**

(B)



Switch off ROCAM 4 Plus before replacing the reel!

- ➔ Installing ROCAM 4 Plus vertically. Front flap (6) must be closed here!
- ➔ Remove camera head (1) from the holder (10) and take the reel cable (4) carefully out of the guide hook (11) (Only SL40: remove camera head).
- ➔ Position camera head (1) with cable (4) into the reel (8).
- ➔ Bayonet connection operated by a half turn, and pulling gently (hold counterpart).
- ➔ Use caution not to damage the connector!
- ➔ Loosen locking bolts by pulling gently from the lock and Turning it 90 °. Restrain reel (8) to prevent from slipping.
- ➔ Push reel (8) toward T-slot and remove the side. Use caution not to damage the connector.
- ➔ Mount in reverse order, paying attention when inserting the reel (8) on mark.

The software automatically detects the connected camera head.

**Overview:**

- |   |                   |   |                               |
|---|-------------------|---|-------------------------------|
| 1 | Battery pack      | 4 | Warning display               |
| 2 | Sliding seat      | 5 | Capacity indicator button     |
| 3 | Operation display | 6 | Capacity and signal indicator |

**Start of operation**

Before plugging in, check to see that the rated mains voltage and mains frequency, as specified on the rating label, match your power supply!

Devices such as this one, which generate direct current, may have an effect on basic residual-current circuit breakers. Use type F or better, with a release current of max. 30 mA.



Before commissioning the charger, ensure that the air slots are free. Minimum distance to other objects is 5 cm/ 2"!

**Self-test:**

→ Insert mains supply plug.

The warning display (4) and the operating indicator (3) light up one after the other for approx. 1 second and the installed fan runs for approx. 5 seconds.

**Battery pack:**

Charge the battery pack before use (1).

If performance diminishes, recharge the battery pack.

The ideal storage temperature is between 10°C / 50° F and 30°C / 86° F. The permissible storage temperature is between 0°C and 50°C / 32° - 122° F.

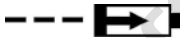
**Li-ion battery packs** have a capacity and signal indicator: (6)

→ Press the button (5), the LEDs indicate the charge level.

If one LED is flashing, the battery pack is almost flat and must be recharged.

**Handling****Charging battery pack:**

→ Push the battery pack completely to the stop on the sliding seat (2).



The operating indicator (3) flashes.

**Conservation charge:**

Once the charging process has finished, the battery charger automatically switches to conservation mode.

The battery pack can remain in the battery charger and is therefore always ready for use.



The operating display (3) lights up continuously.

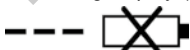
**Fault:**

- Warning display (4) lights up continuously.



Battery pack is not charged. Temperature too high/ too low. When the temperature of the battery pack is between 0 °C and 50 °C / 32° - 122° F, the charging process begins automatically.

- Warning display (4) flashes.



Battery pack is defective. Remove the battery pack immediately from the charger.

The battery pack was not pushed correctly onto the sliding seat (2).

## 5 Care and Maintenance



Always clean the device after every pipe inspection!

- Turn the device off with the power button on the monitor (7) and remove the battery, and pull the electrical plug.
- Close the cover and press until it clicks.
- Take off the reel (8) from the ROCAM 4 Plus (see section 4.10) and clean under running water.
- Only clean the reel when removed from device.



The device must be protected against water and must only be cleaned with a damp cloth!

- Insert dried reel (8) back into the device (see section 4.10).

### **Charger:**

Repairs to the charger must only be carried out by qualified electricians.

If the mains connection cable of this tool is damaged, in order to prevent endangering personnel and property it must be replaced by the manufacturer, or the Customer Service of the manufacturer, or a similarly qualified person.

## 6 Accessories

You can find suitable accessories in the main catalog or at [www.rothenberger.com](http://www.rothenberger.com)

## 7 Customer service

The ROTHENBERGER service locations are available to help you (see listing in catalog or online) and replacement parts and service are also available through these same service locations. Order your accessories and spare parts from your specialist retailer or using RO SERVICE+ online: ☎ + 49 (0) 61 95/ 800 8200 📠 + 49 (0) 61 95/ 800 7491 ✉ [service@rothenberger.com](mailto:service@rothenberger.com) - [www.rothenberger.com](http://www.rothenberger.com)

## 8 Disposal

Components of the unit are recyclable material and should be put to recycling. For this purpose registered and certified recycling companies are available. For an environmental friendly disposal of the non-recyclable parts (e.g. electronic waste) please contact your local waste disposal authority.

Old batteries can be taken to your specialist dealer who will dispose of them in conformity with environmental regulations.

### **For EU countries only:**



Do not dispose of electric tools with domestic waste. In accordance with European Directive 2012/19/EU on waste electrical and electronic equipment and its implementation as national law, electric tools that are no longer serviceable must be collected separately and utilised for environmentally compatible recycling.

