

CE

GOLD SCAN II

User's Manual



3D Detector

KTS-Electronic GmbH & Co. KG
Germany



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1. General guidelines

1.1 Introduction

Dear customer,

we congratulate you on your purchase of GOLD SCAN II. Created by KTS-Electronic GmbH & Co. KG, the GOLD SCAN II is the powerful successor of GOLD SCAN, which is well-known in gold and treasure seeker circles.

The newly developed GOLD SCAN II metal detector impresses through its high sensitivity towards gold and precious metals, easy handling and a larger display, which shows all important information at a glance.

The following guide is important and useful in the search for gold and lost objects for both gold and treasure hunters, archaeologists and industry as it can make the search effortlessly.

To avoid possible operation errors we ask you to read all instructions carefully.

We wish you a successful search with your new GOLD SCAN II and are at your disposal, should additional questions arise.

Your KTS-Electronic Team

1.2 Scope of delivery

Hardware:

- GOLD SCAN II electronic unit with Bluetooth® incl. installed li-Ion battery
- Searchcoil 25 cm \varnothing (9.84" – waterproof) with 2 part carbon telescopic pole
- Cylindrical coil 5 x 20 cm (1.96 x 7.87" – waterproof) with 10 m (32.8 ft.) cable
- 1 x 1 m (3.28 x 3.28 ft) search frame, incl. backpack (depending on scope of delivery)
- Tablet Computer with KTS software and operation system incl. li-Ion battery
- Powerful quick-charger (2800 mAh) with power inverter, car-charging cable and additional 110V adapter
- Solid hard-top case

Software:

- KTS-3D software for GOLD SCAN II (pre-installed on PC)
- USB stick with software for processing data on other computers

Service:

- User's manual English, German, Spanish or French
- 2 years manufacturer's warranty for the entire scope of delivery (including hardware and software)



2. Electronic Unit

Compared to its predecessor the advantage of GOLD SCAN II consist primarily in the fact that the sensitivity towards gold and precious metals was substantially increased and the setting was simplified. Instead of several control knobs the new device has only one ON- / OFF-button and a display that delivers all informations at a glance. This makes the search considerably easier.

The electronic unit is installed in a stable box and carried in a leather bag.



Power: The new GOLD SCAN II is equipped with only one ON-/OFF-button.

Reset: Automatic zero balance at the touch of a button. By activating the Reset-button the device will be aligned to the actual soil condition.

Freq.: Frequency adjustment.

Audio: Volume control

Bluetooth (BT): green operating LED for Bluetooth connection with computer.

Display: **ID:** Presentation of metal type and display of conductivity
 BAT: Battery control (graphically and in percent).

2.1 Back side



1. **Charger** (connection to the charging device / separate plug): For charging the battery the plug of the charging device has to be plugged into the provided connector socket. The maximum charging time is 90 minutes (to avoid a defect on the charger or the built-in battery, please do not exceed this time). The connector of the charger should be removed after each charge.
2. **Headphone socket:** Any commercial headphones with 6.3 mm jack can be plugged in. During use the loudspeaker is turned off. Matching, light weight headphones are provided.
3. **Socket for coils:** The connecting socket for coils is located on the left side. The connector plug of the searchcoil has to be plugged into the socket. Before removing the plug the locking knob must be pressed, only then an extraction is possible. The connector is compatible with all GOLD SCAN II searchcoils.

3. Search process

Please note the following:

- Stay away from conducting overhead lines
- Do not use cell phone during operation
- Do not process any measurement during thunderstorms
- Protect device from wetness
- Accurate operation is only guaranteed with a fully charged battery
- For operation or charging only use the components enclosed or released by KTS GmbH & Co. KG.

GOLD SCAN II is a PC-connected metal detector, which is provided with the KTS-3D software. First you should use this device like a common metal detector without 3D software, i.e. search and identify your findings on your display (metal type), then mark the place of discovery. Later you can scan the spot more precisely by using your laptop with the KTS-3D software. The handling of laptops and the respective settings will be explained in chapter 5 (page 15).

The GOLD SCAN II is ready for use within a very short time:



1. Activate the metal detector with the ON-/OFF-button. The respective searchcoil should be cable-connected to the electronic unit in advance.
2. Hold the searchcoil to the ground and press the **Reset**-button for a brief moment. You herewith attain a zero balance, which is necessary for a trouble-free search.

Please make sure, that there are no metal objects near the searchcoil during zero balance. This could cause a wrong adjustment of the metal detector and produce unwanted indicator effects (as the case may be repeat the **RESET**-procedure on another, metal-free spot).

3. In the beginning please set the frequency to the lowest level (turn the **Freq.**-modulator clockwise). The volume should be set hearable with the help of the **Audio** control. Generally we recommend to start with the lowest frequency adjustment to acquaint yourself with the handling of the device. With advancing experience it is expedient, to increase the frequency gradually, what will have a positive effect on the search performance.

3.1 Search recommendations and hints for Reset operation

During the search process be sure that you do not carry items of metal with you. This could cause a wrong adjustment when pressing the **Reset** key and can produce false indicator effects. In addition, this can lead to a false metal discrimination. While searching be ensured, that the sound remains constant, otherwise a wrong adjustment caused by magnetic fields may occur. In this case, the searchcoil is held above the ground and the display has to be observed after renewed actuation of the **Reset**-button and the adjustment of the frequency. The GOLD SCAN II has a constant metal discrimination. Thereby the inserted microprocessor computes the conductivity of the metal objects and indicates them on the digital display

Note: For a successful search the function of the **Reset**-button is of utmost importance.

After each of the following changes please press the **Reset**-button:

1. After every engaging of the metal detector.
2. After each change of searchcoils.
3. During the search, if sound becomes instable due to bad ground conditions or geomagnetism.

To create the search more target-oriented and therefore more successful – especially before excavation – please draw your attention to the following:

1. Change of sound (frequency)
2. Intensity of sound
3. Continuity of sound
4. Extent of value (digital display)

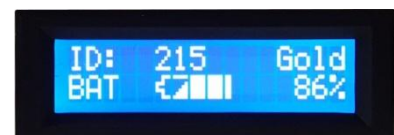
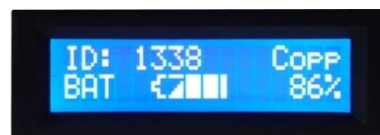
The change of sound is the first sign for the detection of a metal object. Before excavation, however, further details should be taken into account and the own search experience should be used for help:

The more intense the sound, the larger the metal object and the nearer the position to the surface. While the high search tone is audible, it is required to move the searchcoil in the close surrounding to determine the shape of the metal object.

ID (metal discrimination):

Compared to the predecessor model, in which only a single measurement was conducted, GOLD SCAN II enables the discrimination by a special measuring method. Now 5 measurements are carried out, which will calculate the average value. The average value calculation leads to a more precise metal type discrimination. The extent of the metal type range makes it possible to distinguish different size metal objects with the appropriate values from one another. The average value is shown in sector gold with 100-1000, in the range of copper with 1000-2500 and in the field of light metals, e.g. aluminum, as of 2500.

Unlike to other metal detectors a constant metal discrimination takes place at the GOLD SCAN II. Conductivity value and metal type (e.g. "Gold") are indicated on the display.



Note: The new GOLD SCAN II shows a very sensitive reaction towards small gold objects (e.g. nuggets). Through the increase of frequency the depth performance also rises. Due to difficult soil conditions it can occur, that interferences will escalate. With a renewed **Reset** and a reduction of frequency this can be lowered.

As long as the searchcoil is exactly located over the metal object the displayed conductivity value is decisive.

To identify a metal object a weak tone is inadequate. To compute the conductivity of a metal object a signal with high intensity is necessary.



Please bear in mind that – depending on soil conditions as well as size and shape of the located objects – the measured values can diversify. The indicated values are guide values, which can be complemented with your own search routine

See also the explanation of false signals on page 18.

Note: To avoid incorrect conductivity values it is absolutely necessary to repeat the adjustment of the soil balance. When pressing the Reset-button make sure, that there are no metal parts in the soil..

3.2 Exact location of metal objects

GOLD SCAN II works with the pulse induction searching system and is able to detect without setting the searchcoil in motion. While approaching an object with the searchcoil you will notice an increase of sound frequency. As soon as the searchcoil is exactly positioned over the object, the highest tone is reached and the displayed conductivity value corresponds to the probable kind of metal.

With this method not only the exact place of discovery is located, the shape of the item can also be identified through the sound continuity. For example, a long-lasting high tone stands in longitudinal direction for a slim object, e.g. a pipe. A high tone in any direction indicates a ringlike object.

4. Search progress

4.1 Assembly

1. Install the carbon telescope bar by screwing the carbon tube (adjustable in length) to the armrest.
2. Insert the plug into the provided connector of the unit's backside. The electronic unit is kept in a carrying leather bag through which lower opening the plug is to be inserted (see also page 7, item 2.1).



4.2 Usage and selection of searchcoils

In addition to your GOLD SCAN II we deliver several searchcoils, each suitable for certain applications.

Note: A slewing of the searchcoil is no longer necessary. Just hold the searchcoil flat and parallel to the ground and determine your search speed.

4.3 25 cm coil

The 25 cm searchcoil is particularly suitable for the search after small metal objects.



Operation:

1. It is advisable to hold the searchcoil parallel to the ground level.
2. After activation and regulation of volume and frequency press the **Reset**-button for soil balance.
3. For the ground balance regulation hold coil about 5 cm above the ground (on a metal-free spot, e.g. hold the coil in the air) and press the **Reset**-button for approx. 3 seconds. With the ground balance regulation the influence of minerals in the soil is neutralized and less error signals are produced.
4. Repeat the ground balance regulation at various spots, so that the regulation is always carried out correctly. It is recommendable to repeat this process, particularly by changes in soil layers as caused by excavations.

4.4 Cylindrical coil

By its dimensions of 5 x 20 cm the cylindrical coil especially is applicable in narrow spaces (e.g. crevices) or in inaccessible spots (wells, shafts, other excavations). The coil is supplied with a cable of 10m in length.



4.5 1 x 1 m PVC search frame (depending on scope of delivery)

The provided 4 m cable coil is fastened to the 1 x 1 m PVC frame. The search frame is primarily used for the deep sounding after medium-sized and large metal objects. The frame is indispensable for the search in large areas. Furthermore small scrap iron parts are automatically filtered.



Note: Metal detectors create magnetic fields in the searchcoil. Under certain circumstances they can be affected in their functionality when operated in the vicinity of industrial plants or electronic devices.

Assembly:

As a first step connect the PVC pipes (8-fold demountable) to each other, then fix the cable with a tape to the pipes.



Application:

The search frame is build of lightweight plastic pipes and a 4m cable, which has to be attached to the pipes. The frame can be carried from 1 or 2 persons and is most adequate for the search after large objects, which are expected in a large-scale area. It is recommended, to keep the distance to the soil surface as low as possible. The advantage of the search frame is, that it does not indicate small disturbing metal parts.

To avoid unwanted influences caused by earth magnetism the **Reset** button should be activated, if sound is unstable.

Note: Strongly magnetized soils affect large searchcoils (search frame) more than small searchcoils. For this reason be certain, that when you are searching with the large coil it is kept approx. 15-50 cm (depending upon landscape) parallel to the soil and avoid jerky movements.

4.6 Battery and chargers

The strong pulse power is reached by the built-in 2800 mAh-li-Ion battery, which is charged within 90 minutes. Please note, that the supply cable for the battery charger has to be removed after each charging procedure.

The actual working time amounts to (depending upon coil size and usage of headphones) approx. 4-8 hours.

In addition, we deliver an inverter which enables the charging in the car.



Note: The maximum charging time is 90 minutes. To avoid a defect on the charger or the built-in battery, this charging time should not be exceeded (could lead to a loss of warranty of damaged charger).

5. KTS-3D Software

The program serves the visualisation of measurement data in colored, 3-dimensional representation, in particular the display of magnetic field data.

The 3D software is preinstalled on the provided tablet computer. For operating of the tablet computer please read device's manual.

5.1 Software start-up

Open the software through double-click of icon KTS-Online (preinstalled on desktop)



5.2 Main window

After start of program the main window appears with the menu bar, the adjustment segment (left) and the display area (right).

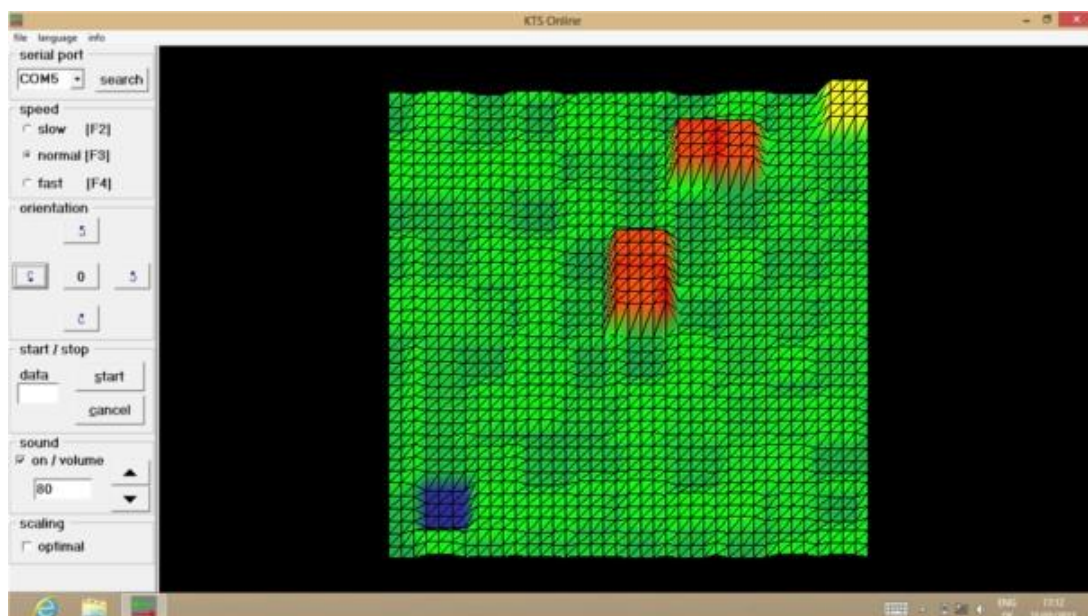


Illustration shows a demo record.

5.3 Toolbar

➤ File menu

The file menu is found in the menu bar with entries for storage and reading of measurement files. In addition, the program can be closed here.

➤ Language

The program allows the switch to several languages (English, German, French and Spanish).

➤ Info

A display delivers information of the present software version.

5.4 Adjustment range

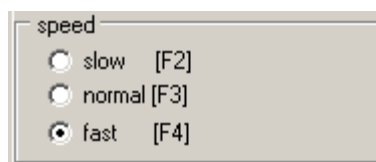
All settings are stored and available with the next program start.

5.5 Serial interface

Here you can choose the COM-port for the connection to the measurement hardware. In this list only the present COM-port will be shown. The number of the COM-ports can be read out in the Windows Device Manager (s. page 18, 6.2).

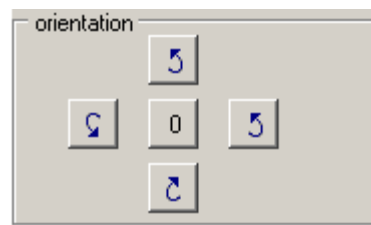
5.6 Speed

You may select three levels of measuring speed. The movement on the tracks must comply with your speed. A switch is also possible with the function keys [F2], [F3] and [F4].



5.7 Position

The 3D display can be rotated and tilted. The center button [0] resets to the origin presentation.



5.8 Start / Stop

By pressing the Start button the search begins. The first results will be displayed 2-dimensional until the measurements are completed. For the next measuring you must press the start button again. With the button [Stop] you can interrupt the measurement at any time.



The measuring process starts with a countdown. The figures are accompanied by short audio signals. After the **Start** display the coil must be moved from left to right. For this purpose follow the appearing colored lines. After every end of a line the coil must be slightly moved forward. At the end of the track the audio signal is repeated. The recording automatically stops after the last track.

Note: To ensure a correct measurement, it is absolutely necessary to press the **Reset**-button before every search process and light up of the **Reset LED**.

5.9 Audio output

The sound can be turned on or off. The volume is adjustable in 10% steps from 0 to 100%. Of course, the volume control depends on the individual volume of your PC.

5.10 Scaling

With the support of scaling the presentation in the color spectrum will be adapted optimally. The lower limit is shown in blue color, the maximum limit appears in red. The use of scaling is especially recommended for less distinctive color changes.

5.11 Presentation

The measurement data is displayed color-coded and 3-dimensional. Low values correspond to the color blue, green or yellow are assigned to medium measured values. High readings are shown in red.

In the data menu you have the option to store measured data resp. display the measurements again. By pressing the right mouse button the 3-D presentation can be rotated in all directions. The [0] button leads you back to the origin presentation.

5.12 Storage and transfer of measurement data

For a subsequent analysis the measurement data is stored. We recommend the further data processing in the undisturbed atmosphere of your home, where perhaps a larger display is available.

If you want to evaluate the measured data on a larger display later on, transfer it to the provided USB stick, on which the complete software is pre-installed.

6. Driver set-up (*only after reinstalling*)

Note: If you want to use another laptop to connect the main unit or had to reinstall Windows, first of all copy the folder from the supplied USB-stick to your computer (see 6.1).


System requirements

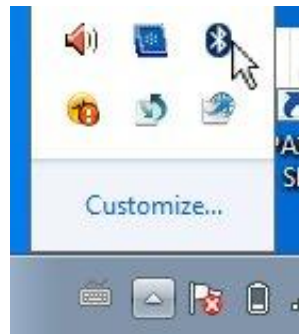
You can connect your GOLD SCAN II to any PC or Laptop equipped with Bluetooth and Windows software and the following conditions: The software works with Windows 98, 2000, NT, XP or Vista or WIN 7 or 8. As minimum requirements for a smooth operation the PC should be equipped with the following:

- Processor with a pulse frequency of 1000 MHz or more
- Hard drive with about 10 .. 20 MB free space
- Graphic card with a minimum resolution of 800 x 600 points
- Bluetooth ability to connect the external measuring hardware

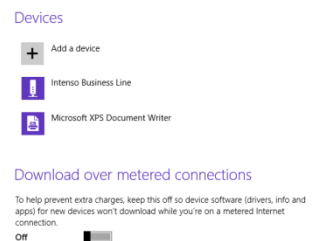
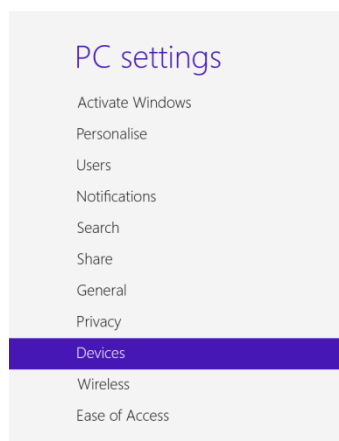
Please note, that the minimum resolution is 800x600, otherwise important functions can not presented.

6.1 Bluetooth pairing

The Bluetooth symbol  will appear in the menu bar. With right mouse button on the above symbol the **add a device**-window shows all available Bluetooth functions (it is necessary that GOLD SCAN II is active and the green LED flashes).



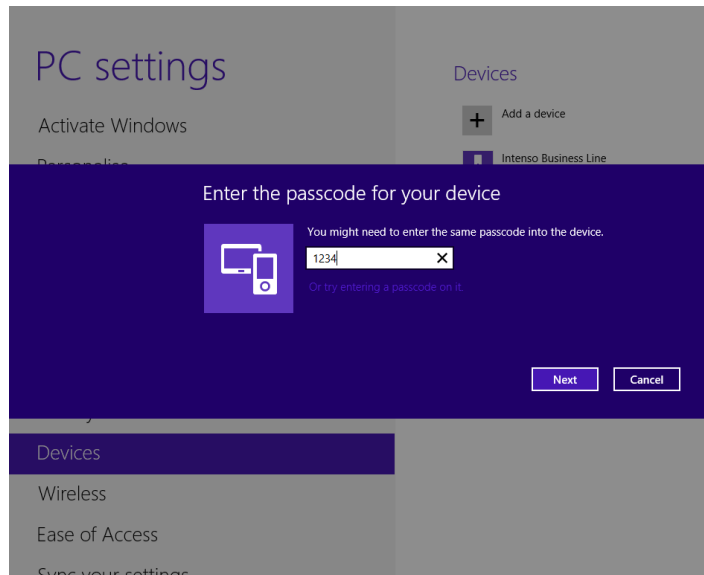
Select **Ezurio Blu 2I** and click “Next”. In the next window pick “Enter the device’s pairing code”, insert the password “**1234**” and go to “Next” (GOLD SCAN II automatically will instal the suitable drivers). Finally click the Close-button to conclude the procedure



6.2 Reading of COM-Ports

Click on the Bluetooth icon at the Windows taskbar on the right side. Open the Bluetooth settings and there the COM-Ports. Write down the Outgoing-No. (COM - usually between 3 and 6) and click OK.

After that open KTS-Online Software, and select the memorized COMPORT in field "Serial Port". By restarting the software the device automatically will be connected to the computer. The LED lights up permanently and GOLD SCAN II is operational.



For further application please note, that Bluetooth and GOLD SCAN II are active (above proceedings must not be repeated).

7. Error signals

During development of GOLD SCAN II particular emphasis was laid on stability and the avoidance of malfunctions. Despite the high number of filters and modulators it may occur, that certain soil conditions cause disturbances, which can influence your measured values.

Apart from a wrong soil balance adjustment incorrect signals can emerge by the following effects:

1. Ferric oxide: Through magnetic ferric oxide soils the conductance value of the located metal can comprehend falsified data.
2. Anomaly effects can lead to the fact that large iron metals are indicated as precious metal.
3. Small parts of bronze partially may be indicated as iron. The accuracy of the measured values is therefore only ensured starting from an object of 5 x 5 cm in dimension.
4. The measured values can be falsified, because other metal parts are located near the found metal object.
5. Strongly magnetic interference fields within residential areas and in the vicinity of ground cables can influence the measured values, especially when working with the large searchcoil.
6. Disturbances often occur in the peripherals of radio stations.
7. Strongly magnetic fields, particularly in the neighbourhood of high voltage masts, can cause disfunctions.

8. Technical data

Electronic unit

Dimensions ca.: 18 x 22 x 7 cm

Weight: 1450 g (incl. bag with shoulder strap)

Power supply: integrated li-Ion battery 12 Volt (fully charged 14-16 V) / 2800 mAh

Operating time: ca. 4-8h

Charging time: maximal 90 minutes

car-recharger: external car-recharger (connectable to cigarette lighter)

1 x 1 m coil (depending on scope of delivery)

Dimensions: 8-fold demountable, incl. transport bag, approx. 60 cm length

Weight: total weight incl. transport bag approx. 1.2 kg

9. License agreement

The program KTS-3D as well as the entire accompanying electronic or printed documentation are subject to the copyright of KTS-Electronic GmbH & Co. KG. If parts of the present license regulations should show alterations or expansions in comparison to license regulations for former program versions, the current license regulations are valid with the beginning of the effective date.

The present license regulations come into effect on May 1st, 2007.

Through the utilisation of the software, the user agrees to the present license regulations. For each incidence of violation of the terms of license the right of utilisation automatically becomes void.

9.1 Utilisation clauses

After full payment of the invoice amount the customer is allowed to a not-exclusive right of usage of the program listed in the bill. This right is restricted to the owner of the original software. Consequently, the software can be used only on one single computer system at the same time.

All present and future copyrights and/or industrial protection rights of the provided programs and of all programs diverted from them, program modules or in this context created documents remain at KTS-Electronic GmbH & Co. KG.

9.2 Disclaimer of liability

The present program was tested with great care and accuracy, nevertheless mistakes cannot be ruled out. No guarantee is adopted for the usability of the program to a certain purpose. Especially, no liability is adopted for consequential damages as well as profit and asset losses, that could result from the application of the program as well as the affiliated documentation.

Prices may change without notice. The same applies to changes any sort in software or documentation.

10. Warranty

We grant repair works free of charge due to factory errors originated by mistakes and defects **24 months** from date of purchase.

According to the following conditions (see below) we remedy deficiencies free of charge, if they are evidently based on manufacturing errors or defects and are reported to us immediately after detection of damage within **24 months** after delivery to the first buyer.

Divergencies from the required quality of the goods, which are insignificant for the suitability of value and use (failures caused by chemical or electrochemical influences, damages resulting from wetness as well as from non-standard handling in general) are irrelevant and excluded from the warranty.

Defective parts will be repaired gratuitous or replaced by unobjectionable parts of our choice. KTS reserves the right to exchange the device for a product of equivalent value in case the returned product cannot be repaired in an appropriate budget time frame. On-site repairs cannot be demanded. Replaced, resp. exchanged parts will merge into our property.

The guarantee claim expires in cases of improper handling, gross carelessness or if repairs, modifications, additionally installed parts or extentions are carried out from persons which are not authorized on our part to do so.

Guarantee claims will neither effect an extention of the term nor they will implement a new guarantee period.

Further claims are excluded, in particular such through extraneous causes resulting product damages, provided there is no obligatory legal liability. We therefore are not liable for any accidental, indirect or other subsequent damages of any kind, which lead to limited use, data loss, profit setbacks or operating failures.

We therefore are not liable for any accidental, indirect or other subsequent damages of any kind, which lead to limited use, data loss, profit setbacks or operating failures.

10.1 Warranty expiration

KTS-Electronic GmbH & Co. KG can agree upon a service after the term of guarantee is expired. In this case repairing and shipment will be charged.

10.2 Care

Your GOLD SCAN II requires little maintenance, yet there are some items, which you should consider, in order to receive its optimal readiness for operation. Avoid extreme temperatures, since it can be possible that electronic construction units are damaged thereby. Protect the electronic housing with a plastic bag in case you should get caught by rain, fog or dust. Always keep your equipment clean and dry and wipe off sand and dirt.

10.3 Legal note

Before you start searching please note that the monument protection as well as other legal standards are relevant. KTS-Electronic GmbH & Co. KG. assumes no responsibility for possible legal violations.

In case of doubts we recommend a comprehensive consultation with an attorney or national monument offices.

11. Contact

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Fridays: 9:00 am to 4:00 pm

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