RUTUS

METAL DETECTOR

Atrex

USER MANUAL

DEAR USER!

Thank you for purchasing this product. This detector has been designed with the latest technology to allow you to make the most of your passion, to discover the remains of the past.

Atrex is a detector where you can decide how advanced the software you will be running. If you are a beginner or you like "turn on and go" products then the recommended mode is "Basic". If you require full control of the device then the recommended mode is "Advanced". You will find these modes on our website under the "Software" tab.

We hope that the Atrex meets all of your expectations during your adventures.

This manual will give you all the necessary information, so that you can quickly understand how the Atrex works before going into the field.

Please take some time to get to know your detector, each day spent working with your detector will increase your knowledge, and steadily increase the effectiveness of your searches.

Please remember that while you are searching, you will be uncovering history.
Do not destroy these unique remains in the process, take some time to get to know the law of your country and leave your search area clean and tidy.

Be an exemplary user of metal detectors:

Do not use the detector in areas that are under archaeological protection or where an archaeological dig has been conducted.

Before entering private property, ask the owner for permission.

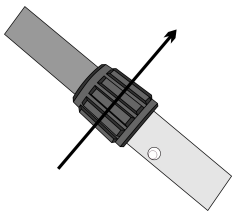
Do not make life harder for farmers or foresters by damaging crops or disturbing animals.

Do not leave a mess after yourself. Leave the place you have searched, in the same condition as when you arrived.

Refill all holes, take any rubbish with you and put it in the next rubbish bin you come across.

TABLE OF CONTENTS

DETECTOR ASSEMBLY



The detector assembly is simple and requires no tools, a properly assembled detector is shown on the front cover of the user's manual. Before assembling the stems, make sure the cam lock is unlocked by rotating it as shown in the picture. Next push the spring buttons in and insert one stem into the other. Release the buttons and they will lock in the holes. Next secure the cam lock by turning it the other way until it is hand tight. Do not over tighten the cam locks or the screw securing the search coil. The connecting cable should be secured with two rubber cable ties to the base of the lower stem, and then wrapped around the stems. Doing this will prevent from creating loose loops of the cable in the search coil area and protect the cable from pulling out from the search coil. The third rubber cable tie should be used to attach the cable to the top of the detector, which will prevent the cable from slipping downwards. Pay attention when inserting the cable from the search coil into the socket: the cable should not be too tight and the plug must not be inserted at an angle, as this may damage the search coil cable or plug. See the photo on the front page for best practice. The armrest is adjustable – first remove the screw, then move the armrest to the desired position and re-tighten the screw. When disassembling the detector, begin by unplugging the search coil from the socket and loosen the cable wound around the stems. Once this is completed the rest of the detector may be disassembled into its basic components. Finish by loosening the screw securing the search coil and fold it together with the stem.

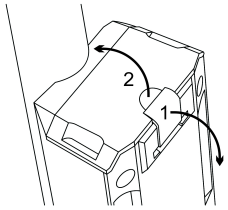
NOTE: Try to avoid creating large loops of cable near the edges of the search coil, as this may result in the detector giving false readings.

NOTE: The coil cable plug is protected by a silicon cover. This is there to prevent dirt and sand from damaging the delicate, gold connector pins. If the plug is not in the socket, it should always have the protective cover on.

NOTE: Cleaning the detector must be done using only water with soap on a damp sponge. Do not use any solvents or petroleum products. Regularly clean the stems and cam locks.

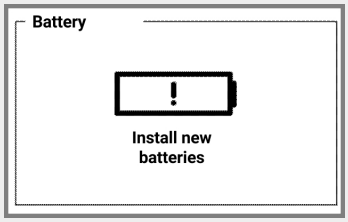
BATTERY INSTALLATION

Use good quality alkaline or rechargeable batteries of well-known brands. Do not mix new and discharged batteries or regular ones with rechargeable ones. Used batteries must be removed from the detector as soon as possible. Remember to remove the batteries from the detector if it is not going to be used for an extended period of time. The warranty does not cover damage caused by leaking batteries damaging the electronics.



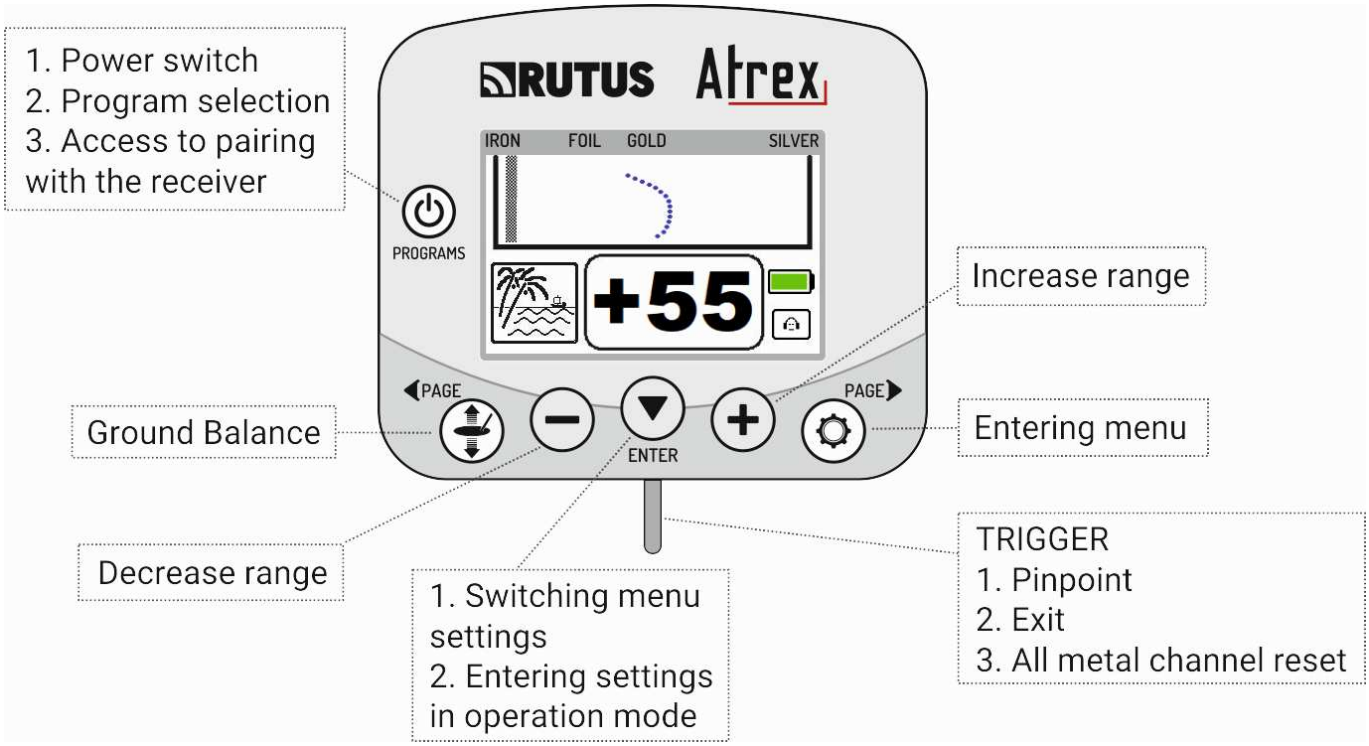
In order to install the batteries, press the centre of the lid (2), unlock the clip (1), and then remove the lid (2) as shown on the picture. After pulling out the battery holder, insert the batteries as shown on the holder, remembering to check if the polarity is correct. It is important to make sure that the spring is pressing the batteries tightly. The holder can only be inserted into the detector one way – the shape prevents it from being inserted the other way around. When inserting the holder, the detector can turn on itself - it is not a symptom of damage.

NOTE: The detector has a battery indicator which monitors the batteries charge level. As the batteries lose charge, the indicator bar will shorten. When the batteries need replacing the detector will turn off automatically. It is not possible to turn on the detector if the batteries charge is too low. As the battery reaches this level, the detector will make a sound of decreasing frequency and the display will show a symbol of a crossed out battery (see picture beside). The circuit monitoring the battery level shows a charging level of 1.5 V for standard alkaline batteries. When using 1.2 V rechargeable batteries the battery charge icon will never be full.



CONTROL PANEL

The picture below shows the functions of individual buttons on the control panel.



TURNING ON/OFF

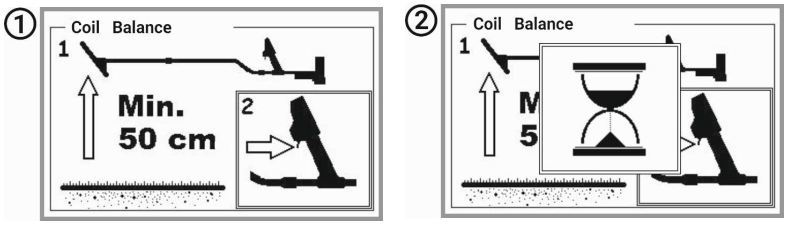
The detector is turned on by pressing the button with the power icon. **The detector can be turned off only from the operation mode by holding the ⏻ button for 1 second.** In the menu screen, the ⏻ button has additional function - entering the pairing with headphones screen. A short press of the button in the operation mode does not turn the detector off but it changes the program in which the detector is working.

COIL BALANCE

The detector forces the coil to balance after switching on, after changing the operating frequency or after changing the program. This is the process by which the detector prepares the coil for operation. The process is automatic and the user's role is merely to lift the coil up away from metal objects and follow the drawings that appear on the detector screen.

Coil Balance procedure:

1. Lift the coil upwards minimum 0.5 meter above the ground.
2. Pull the trigger (momentarily).
3. Wait until the "hourglass" icon disappears.



From this point you can use the detector with the factory ground pre-sets (phase -87,0) or proceed the Ground Balance (if Coil Balance is the start of a user initiated Ground Balance process).

GROUND BALANCE

Correct Ground Balance is gained by "pumping". A single Ground Balance process does not guarantee stable operation across an entire search area or for the whole of a day's searching. It is best to repeat a Ground Balance process each time a new area is started or when the detector starts to give false readings. Examples of new areas would be where field changes to forest, or when moving from a track to wetlands.

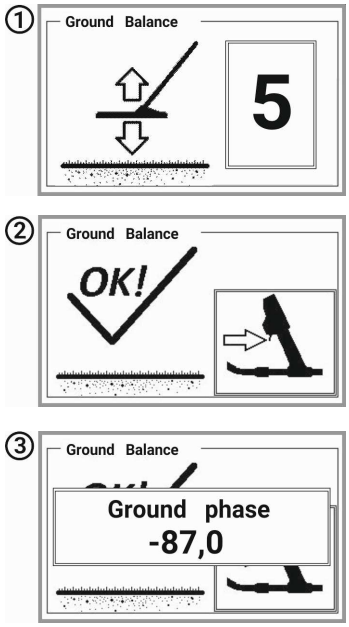
NOTE: A non-conductive ground will give a signal phase of approximately -87.0. The more this value is shifted towards positive values, the more conductive the ground is. On high conductivity soils, the detector may become unstable at the highest sensitivity settings. This is normal. In this situation, it may be helpful to reduce the sensitivity of the detector or work on the factory ground pre-sets.

NOTE: While balancing the coil (screen with an hourglass) the search coil must be raised a minimum of 0.5 m above the ground and away from metal objects. Ground Balance must be done at least 15 m away from other detectors. Not following these guidelines will not damage the detector, but it will cause the detector to operate less accurately – a proper Ground Balance procedure will fix this quickly.

NOTE: If you want to use the detector with factory ground pre-sets, pull the trigger when the pumping screen appears (fig. 1 below), then the screen with the ground phase -87.0 will appear and you can start searching. This is very useful if you want to quickly find an uncluttered area in order to perform correct Ground Balance by pumping.

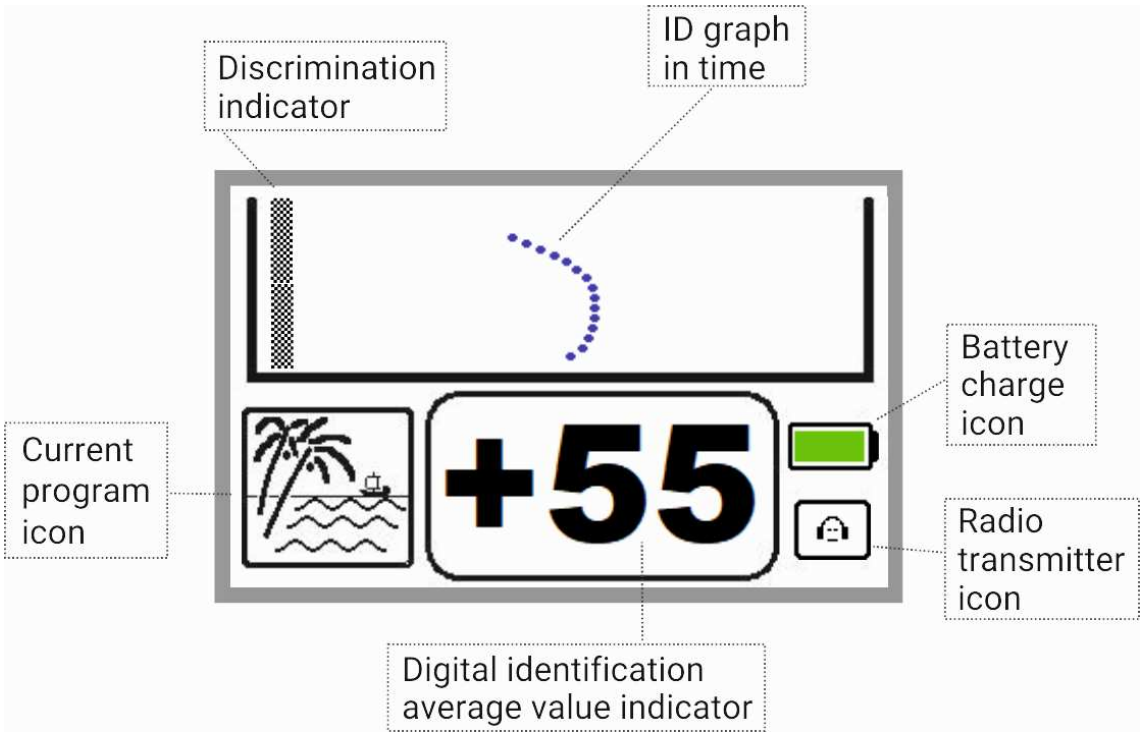
Ground Balance procedure:

1. Press the button.
2. Coil Balance screen will appear.
3. Lift the coil upwards minimum 0.5 meter above the ground.
4. Pull the trigger and wait until the "hourglass" icon disappears.
5. Pumping screen will appear (fig. 1).
6. Start to pump - the search coil should be slowly moved up and down above the ground, each cycle taking about a second. The detector will display the number of cycles remaining – decreasing from 5 to 1.
7. After the last movement up, the screen indicating the completion of ground balance will appear (fig. 2).
8. Pull the trigger.
9. Information about the ground will be displayed on the screen (fig. 3).
10. You can start searching.



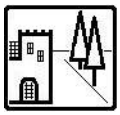
DISPLAY

The picture below shows the display in the operation mode.



PROGRAM SELECTION

The detector has 5 factory pre-set programs designed for various types of searching.

	Beach	A program for a classic beach searches.
	Forest	A universal program with Dual mode to search for large small objects.
	Park	A fast program to search for coins and other small non-ferrous objects amongst steel junk. Quiet sound from discriminated objects informs the user how much littered the area is.
	Field	A program optimised for small objects on low to medium littered sites.
	All metal	A program without discrimination to search for all metal objects.

Turning the required program on is done by pressing the button in the detector's operating mode. Each program is indicated by a characteristic icon in the lower left corner of the display. When switching from the Beach program to the Forest program or from the All metal program to the Beach program the detector forces the coil to balance.

Smart Audio

The Field program is a program with a radically different sound detection and generation algorithm than the others. Smart Audio has the following features:

1. Higher than normal resistance to soil mineralization.
2. A sustained sound to get your attention.
3. Automatic change of sound duration when there is more than one object under the search coil.
4. More stable ID readings and clearer tone identification.

The disadvantage of this solution is that it is more difficult to interpret signals than caps or other similar objects.

IDENTIFICATION

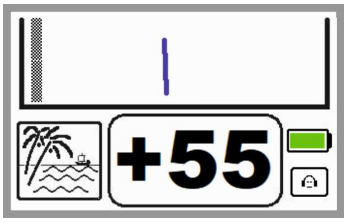
Atrex is a detector which has a built-in metal object identification circuit with 180 identification points. It analyses the signal from a metal object several hundred times per second, after each identification process, the internal memory of the device saves a specific digital value. The values stored in the memory are used to calculate an average identification value and an identification graph is shown. The average value depends on the characteristics of the object that is below the search coil.

When the search coil is moved over an object made of a ferrous metal (e.g. steel) the identification process will give a low value (e.g. -45). Non-ferrous metals will give higher identification values. The value for objects will depend on their size, thickness and the type of material they are made of. Small, thin objects give values of around +10 and big, thick ones, made from good conductors will show values above +80. The soil will also have an influence on the identification process. Rich mineral contents, and objects at great depth will influence the values against those taken from above the ground.

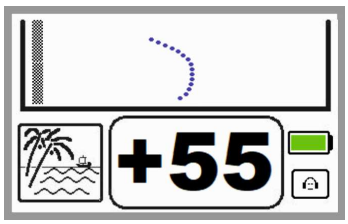
IDENTIFICATION GRAPH

The identification graph is a graphical representation of the data collected by the identification circuit while moving the search coil over an object and is stored in the device's memory. This feature allows for quicker identification of ferrous objects than any other method.

If the graph closely resembles a straight or inclined line then an object's composition is very likely to be of a single material and the digital identification has a high probability of being correct (a straight line in the range of iron is iron, a straight line in the range of non-ferrous metals is most probably a non-ferrous metal).

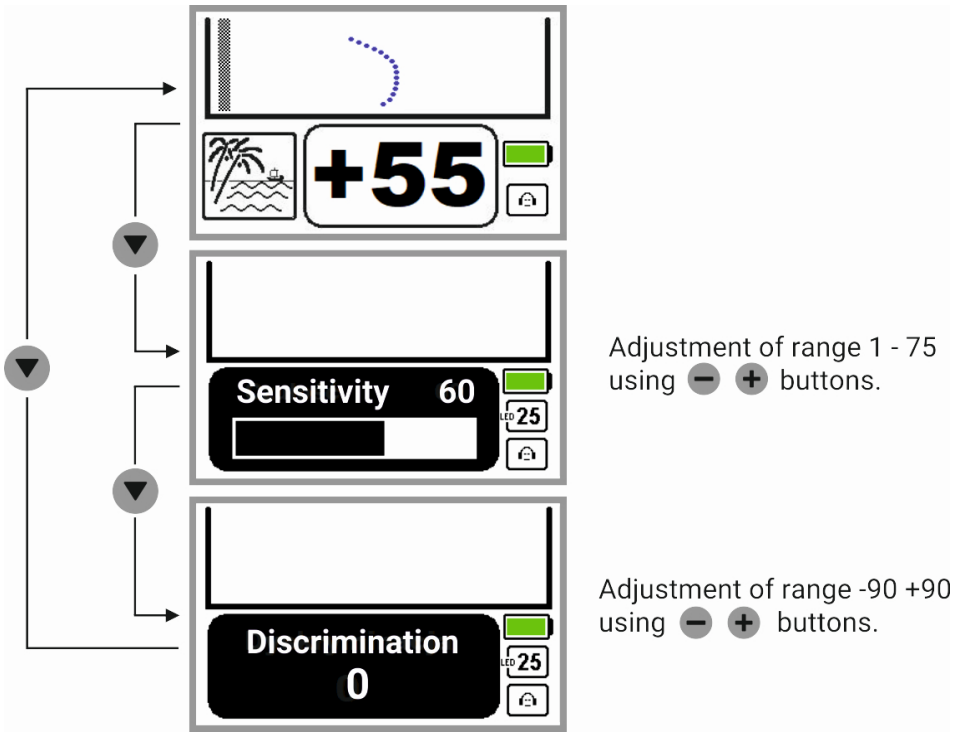


When the graph is clearly bent, curved or spread across the whole of the display, it is highly probable that you are dealing with an object such as a can, a thin steel sheet or other steel object whose magnetic properties are lesser than its conductive properties.



SETTINGS AVAILABLE IN OPERATING MODE

Adjusting the Sensitivity and Discrimination level is done straight from the detector's operating mode. The way to access the settings is described below.



After pressing the ▼ button the « Sensitivity » message will appear on the display, a number describing the Sensitivity level and a linear scale showing the adjustment range. The adjustment is done using the − + buttons. Pushing the ▼ button a second time will show the Discrimination level. Adjusting the Discrimination is done in the same way as adjusting the Sensitivity. After pressing the ▼ button the screen returns to the operation mode screen.

SENSITIVITY

Sensitivity in the Atrex detector may be adjusted across 75 levels. The Sensitivity level set by the user determines the detector's range and more importantly it's stable operation. In areas which are littered, freshly ploughed or have heavy electromagnetic interference, operating with maximum Sensitivity is not possible. Sensitivity has to be adjusted in accordance to the terrain where the search is being conducted and using your own experience. New users should begin their searches with the detector set to Sensitivity levels between 40 and 60.

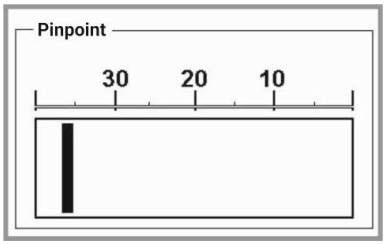
DISCRIMINATION

Discrimination is a function which enables the removal of sound signals from unwanted objects, which have an identification number lower than the set Discrimination value. E.g. a Discrimination value set to -30 will result in a lack of the detector’s reaction to most small steel objects. The Discrimination value can be set within the range [-90 +90].

PINPOINT

This function allows for the quick and easy location of an object you have detected. To use the Pinpoint function move the search coil away from the area where the object is and then pull and hold the trigger. To pinpoint the object, make a cross like movement, to find the point where the signal is the strongest. The depth of the object shown on the screen is in centimeters and is set-up for medium-sized objects (for example coins). This means that for large objects the depth will be larger than indicated on the screen. The operation of the indicator and depth gauge is not dependent on the sensitivity of the detector, however the sound signal is.

NOTE: In the Pinpoint function the detector works in Non-Motion mode.



OVERLOAD

An overload means that the signal from an object is too strong for the detector to process correctly. The Pinpoint function indications and identification indications will be incorrect in this situation. Thankfully this does not mean the detector has been damaged. An overload is indicated by a rattling sound, in this situation lift the search coil up – when the overload message has gone, the display will show the identification value for the object.

MENU LAYOUT

To enter the Menu press the button, and pull the trigger to leave. To switch between settings press the buttons while the adjustment of a given setting is made using the buttons .

Setting	Adjustment range
Silencer	0 – 4
Volume	1 – 30
Tones	Coins 1, 2, 3; Relics 1, 2, 3
Wireless	Off, Kanał 1 – 10
Language	Polski, Angielski
Backlight	1 – 40
WiFi	On or Off

Silencer

The function is used to improve the stability of the detector operation. The work with the detector should always be started on the "0" level and if it is stable then this setting should not be changed.

Volume

To adjust the volume of the sound received from objects. The level of the Threshold is not dependent on this setting.

Tones

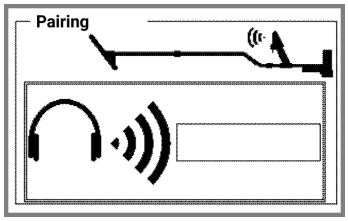
The user has 6 sound profiles in the Motion channel from which to choose. They are divided into three groups: Coins: (1, 2, 3); Relics: (1, 2, 3).

NOTE: We strongly recommend using one of the Coins profiles to search for coins and other small objects made of non-ferrous metals.

Wireless

Atrex has a built-in wireless digital data transmitter which can work on one of 10 available radio frequencies. The design of the digital connection was made especially for our detectors – therefore there is no lag or background noise. In order for the OS-2 receiver to work with Atrex, both devices must be paired together.

Pairing procedure:



1. Set the Wireless in the menu to "Off".
2. Press the button in the detector's panel, the pairing screen will appear (fig. beside).
3. Turn on the OS-2 receiver.
4. The pairing screen will show numbers, these numbers are the radio address of the OS-2 receiver and the Atrex will only work with that receiver.
5. Select one of the ten channels in the detector's menu.

NOTE: Atrex can be paired with another OS-2 receiver at any time.

NOTE: If the Wireless is turned on and the detector is not communicating with the receiver, then a sound will start playing from the speaker automatically.

The use of the accompanying wireless devices is detailed in their respective user's manuals.

Off	The transmitter is off, the built-in speaker and headphone's socket are active.
Ch 1 – 10	The transmitter is on.

Language

Allows the menu language to be chosen.

Backlight

Adjustment of the display's backlight. This allows searching in low light conditions.

WiFi

Atrex is equipped with a WiFi module that has its own built-in processor and memory. During normal operation of the Atrex the WiFi module is switched off. The module performs the following tasks:

1. transfer software files from the device (laptop, tablet or phone) to the metal detector,

2. storage of software files,

3. main processor reprogramming.

NOTE: The Atrex detector at the time of production is programmed with the Advanced software version and may not have other software files in the WiFi module.

The process of downloading the software from our website, loading it into the detector and its reprogramming does not require advanced IT knowledge and is a basic computer operation. To reprogram Atrex:

1. Using a laptop, tablet or phone with Internet access, open www.rutus.com.pl/en and download the appropriate version from the "Software" tab.

2. Save the software file (e.g. Advanced1.1.3.rut) to a known location (Downloaded or desktop).

3. Switch on the WiFi module in the Atrex. The activation of the module is monitored by the detector's main processor and if successful the letters "On" will be black. The battery indicator lighting up yellow indicates that you have to replace the battery, the detector will not power on.

4. Expand the list of wireless networks on your laptop (tablet, phone) and connect to the MyRutusDetector network. If the device asks for the trust level of this network (e.g. "Is the network private or public?") then set this trust level as high as possible.

NOTE: If you are using a mobile phone, disable mobile data transmission on the phone before connecting to the MyRutusDetector network.

NOTE: Depending on what operating system your device you are using to connect to Atrex is running, the wait time for the MyRutusDetector network to appear can be several tens of seconds. In some cases, you will need to refresh the list of wireless networks.

NOTE: The MyRutusDetector network connection is not an internet connection. The detector and the devices connected to it via WiFi do not have access to the world wide web.

5. Run any web browser (e.g. Firefox, Chrome etc.) on the laptop (tablet, phone) and enter 192.168.4.1 (without “www” or “https”) in the URL/Address bar and press Enter (or Go/Search depending on your browser/device).

6. A web page generated by the Atrex WiFi module will open.

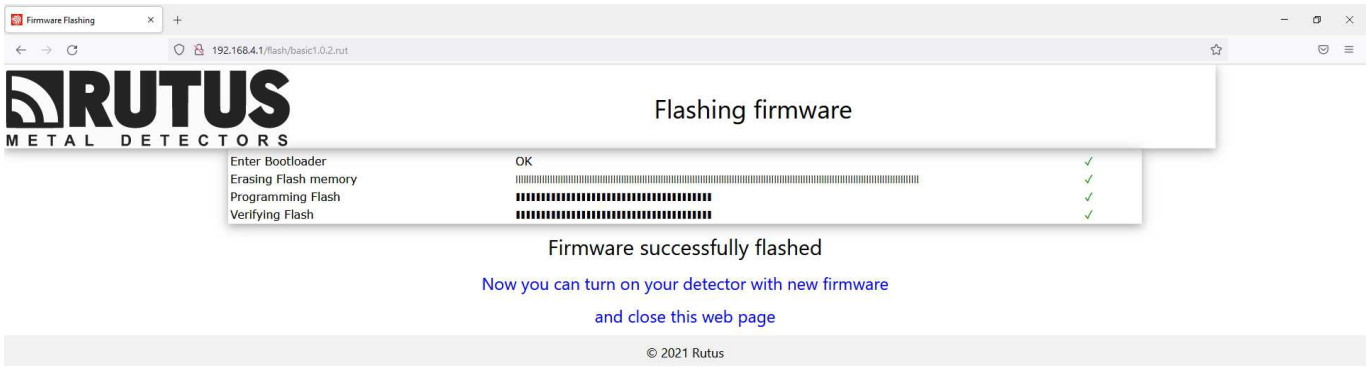
7. Using the "Browse" button, select the software file (e.g "Advanced1.1.3.rut") from the save location (e.g from Desktop).

8. Use the "Upload" button to start uploading the file from your laptop (tablet, phone). Uploading a file can take up to a minute or two (the data transfer rate of the WiFi module is very low due to power saving).

9. When the file is uploaded, it will appear in the list of stored files.

10. The "Flash" button is used to start the reprogramming of the detector. The "Delete" button is used to delete a file from the WiFi Router memory.

11. After starting the detector reprogramming process, a page will appear on the laptop (tablet, phone) informing about the progress of this process. It takes about two minutes. After the reprogramming is completed, the detector will power off and the following page will display in your browser:



12. If an error occurs during the reprogramming process, the message "Something goes wrong" will appear instead of "Firmware successfully flashed. Please try again." Use the "Go Back" button to return to the first page and start the process again.

SEARCHING - USEFUL ADVICE

Searching is done by sweeping the search coil left and right as quickly as is comfortable and as close to the ground as possible. Touching the ground with the search coil should be avoided, try to avoid hitting it against rocks and other objects protruding from the ground. While the search coil is designed to be resistant to damage when hit against hard objects, a more effective search will be had if this can be avoided. The search coil should be held parallel to the ground, as this is very important to ensure an effective search. This is especially important when reaching the end of each left and right swinging motion, as lifting here changes the distance from the ground. This changes the level of the soil signal, which results in the filters having to process this, giving a decrease in search efficiency. Over time try to get into the habit of moving the search coil parallel to the ground.

How fast you are able to search depends on your ability to sweep, however sweeping too fast can cause a drop in effectiveness also, especially in very littered terrain. Sweeping should be no slower than 0.3 m/s and no faster than 1.5 m/s.

To achieve the most accurate identification of a tiny object, the centre of the search coil should move exactly over the buried object. To do this, use the Pinpoint function, start by moving the search coil 40 – 50 cm away from the location where the object was first identified. Lift the coil slightly and then pull the trigger, then move the coil back to the area where the object was detected and try pinpointing its exact location with the strongest signal. After determining where the object is buried, release the trigger and, while remembering where the middle of the signal is, swing the search coil so that its middle moves over the object, in quick, short movements of between 40 – 50 cm. This will confirm that the detected signal is in the middle of the search coil – and not at its edge – which could cause false identification.

It is recommended to use headphones with this detector, as they will help in shielding external noise. This will allow you to listen more closely to detector's weakest signals, increasing the technical capabilities, especially in the Forest and All metal programs, where the sounds are more subtle. When searching for the deepest objects, headphones should be an essential part of your equipment.

INTERFERENCES

The Atrex detector is designed in such a way that it can be used with maximum sensitivity in places where there is no external interference. In order to achieve this highest possible stable sensitivity, two basic rules must be kept in mind:

1. Correct installation of the cable.

2. Moving the coil smoothly over the surface without jerking or hitting.

However, if there are any signals, it is worth trying to diagnose them yourself.

Checking the source of interference

Many signals appearing during searching are caused by improper settings or improper movement of the coil (jerking and hitting objects/ground). In order to verify whether the fault is user-caused or external, the following must be done:

Put the detector on the ground. If:

the detector hasn't false signals	It means that the source of the problems are settings incorrectly matched to the search conditions and NOT electromagnetic interference. In this case we recommend resetting the program to factory settings and to proceed Ground Balance. If the detector continues to make unnecessary sounds, reduce the sensitivity. This should, in most cases, resolve the issue.
the detector doesn't operate stably	Walk 5 metres away from the detector. If the signal count has decreased then the source of interference may be on you e.g a telephone, pinpointer or any other electronic device.
the detector continues to emit signals by itself	Approach the detector without a telephone or any electronic devices and change the Silencer function. It may also be necessary to reduce the detector's sensitivity.

Sources of external interference include: houses and the electrical devices inside them, power lines, other metal detectors, telephones, walkie-talkies and even stormy weather. To have certainty that the interference is external, even though there are no visible emitters within a radius of several hundred metres, you can conduct another interesting test.

Put the beeping detector on the ground, wait a few seconds to make sure it is still audible, approach again and lay the detector coil flat to the ground, then walk away again. If the signals decrease or become silent, we can be sure that the interference is caused by an external source that we are not able to see. The most common are lightning discharges, which can be up to 100 km away.

NOTES FOR MAINTENANCE

- The detector must be turned off before exchanging the search coil or batteries.
- The device must not be stored with depleted regular or rechargeable batteries installed. When the device is to be stored for more than a month, the cells must be removed regardless of their change status.
- The detector must not be subjected to high temperatures – leaving the detector on a hot day in a car may damage it.
- Do not store the detector in an unheated room during the winter. The best place to store the detector is in a dry room, at room temperature.
- The search coil is waterproof to a depth of 1m, the detector electronics are not waterproof.
- Cleaning the detector must be done using only water with soap on a damp sponge. Do not use any solvents or petroleum products. Regularly clean the stems and camlocks.
- If you use wired headphones – remove the plug from the headphone socket at the end of each search as transporting a detector with the plug plugged in increases the risk of damaging the socket.
- In difficult weather conditions it is advised to use a cover for the control panel and the battery compartment.
- Correct maintenance of the detector will increase its reliability and longevity.

EU DECLARATION OF CONFORMITY

CE

Manufacturer: RUTUS Arkadiusz Rutyna, ul. Krakowska 32, 84-230 Rumia, Poland

Product: Metal detector Atrex

The manufacturer hereby states that this product is in accordance with the requirement of Directive 2014/30/UE on the harmonization of the laws of the Member States relating to electromagnetic compatibility with all later amendments and supplements as it meets the requirement of the following harmonised norms:

PN-EN 61000-4-2:2011
PN-EN 61000-4-3:2007 + A1:2008+A2:2001
PN-EN 61000-4-8:2010
PN-EN 6100-6-3:2008 + A1:2012

This declaration conformity is issued under the sole responsibility of the manufacturer.

RUTUS
Arkadiusz Rutyna
ul. Krakowska 32
84-230 Rumia
Poland
tel. + 48 58 679 33 14
+ 48 601 284 371
rutus@rutus.com.pl
www.rutus.com.pl

The symbol of a crossed out dustbin means that the product cannot be disposed of with household waste. It is the user's responsibility to take the used equipment to a waste disposal site which has the facilities to handle electrical and electronic equipment. By ensuring this equipment is handled correctly you help to protect the environment. For more information about how to recycle this product please contact your local authority, waste removal provider or the shop where this product was purchased.