User Manual



Standard Voyager Extreme Plus

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Future Series 2005, Voyager, & Extreme Plus



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Future Series 2005, Voyager, & Extreme Plus

General Conditions, Safety, Voltage

ATTENTION! READ BEFORE STARTING UNIT! Safety precautions!

Before starting FUTURE 2005 read these operating instructions carefully and precisely!

There is no claim of warranty for damages to property resulting from non-compliance of the instruction or improper use of the instrument.

Accurate Locators or any of its dealers, distributors, or personnel shall not be held responsible for misuse or improper operation of the Future Series Model 2005.

Unauthorized servicing of the 2005 will immediately void any and all warranties, either express or implied. Any and all servicing shall be conducted by an authorized service center or directly by the factory.

The claim of warranty runs out also if our instruments will be completed or connected with other equipment or unit not suitable and therefore not compatible.

This instrument is sensitive equipment and should only be serviced by an authorized technician!

Avoid heavy magnetic fields that exist nearby. Avoid using this detector within 50m of machinery or speaker equipment. The internal processor and computing unit may suffer damage from heavy magnetic fields and areas.

FUTURE 2005 and its equipment help to register interventions into the ground that has any other deposits by delivered or getting in addition modules.

Data (readings) transmission of the ground or subsoil takes place by radio (CB Frequencies) to the PC. Possible obstructions or data transfer interference may be caused by using other electronic devices within the direct vicinity of the 2005.

GENERAL CONDITIONS

FUTURE 2005 is an electronic instrument; therefore use all necessary precautions, as with all other electronics!

FUTURE 2005 is an electro magnetic geophysical reader.

Ignoring the explained instructions of safety regulation or using the instrument in an inappropriate manner can destroy or damage the FUTURE processor plugging into other components or units.

SAFETY PRECAUTIONS

Correct usage does not endanger the health of user. Low capacity high frequency signals are harmless to humans and pets. This is based on today's scientific research. Keep out of reach of children!

CONDITIONS of SURROUNDINGS

After bringing or taking FUTURE 2005 from a cold room into a warm one do not start the instrument at once! Allow instrument time to equalize temperature for there may be some condensation and this could destroy the instrument!

VOLTAGE

The voltage may not exceed 12 volts, or be less than 8 volts. Use proper charging devices provided with 2005. **Before use identify each Battery Charging Unit and its proper plug.** Improper charging may result in batteries exploding or catching fire. Overcharging of batteries will shorten battery life.

In no case FUTURE 2005 to be plugged into 110/230v-main connections! Do not plug in External Battery Pack to Internal Charging Port or Headphone Jack! Improper charging will damage unit!

BATTERY CHARGING TIMES (recommended)

- Internal Battery = 8 Hours (Max 15 Hours)
- External Battery = 4 Hours (Max 7 Hours)
- NiCad / NiMh Battery = 6-8 Hours

SAFETY of DATA

By transmission of data there could appear mistakes or faults if the range of the module will be over crossed, the voltage of the instrument is insufficient, if too long connecting links are used, or if there is any other electrical equipment which may be interfering with radiation, electrical, thunderstorms, etc. The frequency of transmitting data lies in the amateur wavelength (CB Band). That's why there could be losses by transmitting data within the effective range, too, or if there is another transmitter operating in the region.

Due to existing environmental conditions, transmitted data cannot be guaranteed.

SERVICE for CLIENTS-MAINTENANCE

The Future 2005 has no User-Serviceable Parts! The Future 2005 MUST be maintained by an Authorized Qualified maintenance specialists who will analyze, test or check any problems and they will carry out the repair if still within the warranty period. Any repairs by an un-authorized technician will void any and all warranties either express or implied.

WARRANTY

Future 2005 has a **one year parts and labor warranty from date of purchase**. Misuse or abuse to the device may void warranty. **Improper charging of the 2005 may void warranty, resulting in a battery replacement charges or more.** Use of device in conjunction with any other electronic devices that are not compatible may void warranty. The 2005 is not user serviceable, please contact dealer for assistance. An estimate of services will be rendered prior to any maintenance or repairs outside of the warranty period. Buyer is responsible for all related shipping charges.

NOTES

All instructions, technical references, and details are subject to change without notice. This includes without any restriction the implicit promise of sale-ability and suitability for a decided cause.

Accurate Locators makes no claims or will not be responsible for any mistakes (errors or omissions) in this user guide as well as accidental or following damages that are related to delivery, service or use of these documents.

Technical Support

The 2005 is professional grade equipment, therefore free telephone technical support is time limited to one hour; additional technical support units may be purchased. A free technical support area is available on our website at <u>http://www.futuregpr.com/support</u>. Read all instructions prior to use, improper use or operation of the 2005 may void any and all warranties, either expressed or implied.

Telephone Technical Support Hotline +01 (541) 855-1590

Hours of operation Monday through Friday 8 AM - 5 PM (PST) Saturday (by appointment) after hour assistance is available by prior notice or emergency only. Emergency technical support will be billed at time of service. (541) 855-1590

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No	otes

8th Revision. September 2003



The Detector for Professionals



1. INTRODUCTION

Future 2005 is superbly designed EM geophysical phase reader that quickly and efficiently detects underground objects, metal, minerals, tunnels, and water.

The new technology of the lightweight Future 2005, boasts significant improvements over previous slower and heavier models.

The horizontal antenna searches up to 18.7m (60') deep and then the software compiles all of the readings into a 3D graphical image and target depth.

The vertical antenna (Pinpointer) takes a cross section view of the ground up to 2m(7') or with the optional 3m (10') antenna you can see even deeper. It uses state of the art Ultra-Sound technology for the highest graphical resolution.

Images derived from the 2005 allow operators the ability to instantly determine an anomaly situated underground.



FUTURE 2005

When searching for hidden or subsurface objects, we recommend using the minicolor monitor (optional) for speed and field accuracy

using the mini-color By monitor you can see the live picture, not only on the screen, but also on the 2005 directly.

Mineral resources or mineral stratums can be easily distinguished in the graphics from real objects or buried treasure.

To walk with either the horizontal or vertical antenna and immediately detect a buried item is fun for both the amateur as well as the professional hunter.

FUTURE 2005

Standard

Components:

- Horizontal Antenna depth 18.7m (60')
- -Antenna linkages
- -**PC-receiving unit**
- Charging unit _
- **Carrying-case** _
- User guide -
- Software

Voyager

Components:

- Horizontal Antenna depth 18.7m (60')
- Depth Ultra _ 3m Sound Vertical Pinpointer Antenna,
- Laptop Computer -
- _ **Mobile Laptop Station**
- -Headphones
- _ Antenna linkages
- PC-receiving unit -Charging Units (3)
- -**Carrying-Case** _
- User's Guide _
- Software

Extreme Plus

Components:

- Horizontal Antenna depth 18.7m (60')
- _ 3m Depth Ultra Sound Vertical Pinpointer Antenna.
- Laptop Computer -
- _ **Mini-Color Monitor**
- -**Video Sending Station**
- -**Video Receiving Station**
- -Headphones
- -Antenna linkages
- _ **PC-receiving unit**
- _ Charging Units (3)
- -Carrying-Case
- User's Guide _
- Software

Options

- Mobile Laptop Station •
- **Battery Back Pack**
- **Battery Belt Pack**
- **External Batteries**
- **Charging Units** •
- **2m Vertical Pinpointer**
- **3m Vertical Pinpointer**

Future Series Extreme Plus with Horizontal antenna and mini-color monitor



Technical Specifications FUTURE 2005

Operating Temperature: -20 C to +65 C Non-operating Temperature: -40 C to +85 C Transducer Pulse Width Modulated Rate: 1953 Hz Battery Run Time: 10 hours* External 9.6v Battery, 2700MaH Charging Time: 8 Hours (maximum 15 hours) Maximum Continuous Power: 850 mA Voltage Supply: 9.6 V DC Frequency Range: 433 MHZ +/- 150 KHZ Frequency Range Ultra Sound: 400-3000 Mhz +/- 150 Khz variable Maximum Operational Humidity (max): 95% Software Screen Colors: 256 Screen Refresh Rate: 0.2 Seconds Waterproof: NO Processor: Motorola 8 MHZ Internal Working Memory: EEPROM 16k x 8 Bit Modulation: 100 % AM **Modulation Signal: Digital** Demodulation: log. AM-Demodulator Scanhub: 1.3 A Scanrate: 0.2 Nanoseconds (maximum) – Automatic 1pps Horizontal Antenna (1m): Transmitters: 8 Measuring Range: ±100 µT White Noise: 150 pT/Hz 1/2 @ 1 Hz, < 0.5 nT rms (0.1..10 Hz) Bandwidth: DC..1 kHz (-3 dB)



Notes

Getting to Know Your Unit Buttons, Ports and Jack Connections Breakdown





Touch Pad Function Button Breakdown

-			
	This Function is for live transmission with the Horizontal Antenna. The Horizontal Antenna is used for scanning large areas. By using this function, data is sent directly to the PC without it being stored into the internal memory of the 2005.		Detailed info on Page 14
		This Function is for live transmission with the Pinpointing (ultra sound) Antenna. The Pinpointer is used to view an exact cross section (vertical) of the target. By using this function, data is sent directly to the PC without it being stored into the internal memory of the 2005.	Detailed info on Page 13
		Sends ten impulses to the antenna per survey line. May be used for Large Area scan with less resolution.	Detailed info on Page 14
	20	Sends twenty impulses to the antenna per survey line.	Detailed info on Page 14
	30	Sends thirty impulses to the antenna per survey line.	Detailed info on Page 14
	40	Sends forty impulses to the antenna per survey line.	Detailed info on Page 14
	50	Sends fifty impulses to the antenna per survey line. Most commonly used for fine scans with higher resolution. May also be used for very large areas with a low resolution.	Detailed info on Page 14
	1 & 8	The image on the right and left are both used for activating the magnetometer. Each button sends a different tone to help distinguish possible ferrous targets. Non-Ferrous targets will not be detected by the magnetometer. Depth varies depending on size of targets.	
	R 10	Manual impulse sending function. When this function is activated, the 2005 will await 30 manual impulses (by pushing on the red button) per survey line and will transmit the readings to the PC directly without storing the information.	Detailed info on Page 23
	M-10	Manual impulse sending function. When this function is activated, the 2005 will await 10 manual impulses (by pushing on the red button) per survey line and will store the readings to the internal memory for later download to the PC.	Detailed info on Page 22
	TO-PC	This function is used to transmit the stored data from internal memory to the PC.	Detailed info on Page 19
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2005 Extreme Plus Video Station Setup



Video Transmitting Station



SVGA port on rear of laptop



To install the video station transmitter, plug the blue SVGA cable into the external monitor port on the back of the PC.

Step by Step Instructions Video Station Setup Extreme Plus Only

- 1. Make sure that the batteries in the Video Sending Station and the Video Receiving Station are fully charged.
- 2. To ensure proper startup and connectivity of unit turn off Laptop Computer.
- 3. Turn on Video Sending Station, Green light should brightly illuminate. A dim light is a sign of a low charge on the battery. An External Battery (optional) may be connected to the rear of the Video Sending Station to increase the overall field life of the Video Sending Station.
- 4. Turn on Video Receiving Station. Green light should brightly illuminate. A dim light is a sign of a low charge on the battery. An External Battery (optional) may be connected to the rear of the Video Receiving Station to increase the overall field life of the Video Receiving Station and Mini-Monitor.
- 5. Turn on Mini-Color Monitor.
- 6. Start Laptop Computer
- 7. As the laptop computer starts, you should immediately see the screen in both the laptop and the mini monitor.
- 8. During the entire time of using the Video Functionality you may turn off the Video Receiving Station but do not turn off the Video Sending Station. In the event that you turn off the Video Sending Station you may have to repeat steps 2-7 to re-establish signal connectivity.

Troubleshooting

When I start the laptop I only see the screen on the laptop and not the mini-monitor.

Check your laptop settings to ensure that signal is being sent to both the Laptop monitor and minicolor monitor.

I see only squiggly lines in my Mini-Monitor.

The video signal was not properly established or the batteries are in need of a charge.

My Mini-Monitor works but my laptop screen is blank.

Consult your laptop owners manual for the proper key strokes to send the signal to both the Laptop and the Mini-Monitor.

My Mini-Monitor light comes on but there is no picture at all.

Be sure that the AV (Audio Video) cable is plugged into the AV In and not the AV Out port.

Quick Start Guides

These guides were developed to get you (the user) up and running in a minimal amount of time. They are listed in a step by step manner. As you will notice the first function of every guide is to be sure that you batteries are fully charged. The most common error with the Future Series is due to improperly or low charged batteries.

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Quick Start User Guide Transferring Stored Data to PC

- 1. Batteries must be fully charged.
- 2. Connect Radio Transmitting Antenna (if using radio).
- 3. Connect PC Cable to 2005 (white plug), (if Radio) Connect PC Cable to Receiver.
- 4. Plug in 9 Pin Serial Cable into PC.
- 5. On your PC start the System 2005 Software.
- 6. Click on "NEW".
- 7. Select "Normal Graphics" and your "COM Port" (default is COM1).
- 8. Click OK.
- 9. On 2005 push Square Power button to ON position.
- 10. Push Square Power button on Receiver to **ON** position (if using radio).
- 11. Push "TO-PC" button on 2005 touch pad see Figure 1.
- 12. LCD will read "Transfer to CPU Press green"
- 13. Press Green start button.
- 14. On 2005 push Square Power button to **OFF** position when display on 2005 reads "Memory to CPU EXIT" (after tone sounds).
- 15. Push Square Power button on Receiver to OFF position.
- 16. On the System 2005 software click "Stop" button.
- 17. Image of survey should appear on your computer screen, if no image appears then repeat steps 6 to 16.



Quick Start Ultra Sound (2m and 3m)

Pin Pointer (VHF) Vertical cross section LIVE-PICTURE

- 1. Batteries must be fully charged.
- 2. Connect Radio Transmitting Antenna.
- 3. Connect PC Cable to 2005 (white plug), (if Radio) Connect PC Cable to Receiver.
- 4. Plug in Serial Cable into PC.
- 5. Connect Pinpointer Antenna (Blue plug) to 2005.
- 6. On your PC start the System 2005 Software.
- 7. Click on "NEW".
- 8. Select "Live Graphics Vertical" and your "Com Port" (default is COM1).
- 9. Click OK.
- 10. Push Square Power button on Receiver to **ON** position.
- 11. Push the square power button (2005) to ON position.
- 12. Select the Pinpointer (Ultra Sound) Button see Figure 1, push only once.
- 13. Press "Start" button (Green button).
- 14. Move the ultra sound antenna slowly in any direction to view your target.
- 15. Image of survey will appear on your computer screen immediately.
- 16. Push the Square Power Button (2005) to the OFF position.
- 17. Push Square Power button on Receiver to OFF position.
- 18. On the System 2005 software click "Stop" button.

Using this mode you can scan with the vertical antenna forwards- and backwards!

Voyager unit in the field with the Pin Pointer taking readings in real time on Laptop Computer

Pin Pointer is held 5-10cm (2-5in) above ground



Figure 1



Quick Start Horizontal Antenna

LIVE-PICTURE

- 1. Batteries must be fully charged.
- 2. Connect Radio Transmitting Antenna.
- 3. Connect PC Cable to 2005 (white plug), (if Radio) Connect PC Cable to Receiver.
- 4. Plug in Serial Cable into PC.
- 5. Connect Horizontal Antenna (Blue plug) to 2005. Arrow on antenna must be on top side and pointing to the left.
- 6. On your PC start the System 2005 Software.
- 7. Click on "NEW".
- 8. Select "Live Graphics Horizontal" and your "Com Port" (default is COM1).
- 9. Click OK.
- 10. Push Square Power button on Receiver to ON position (if using radio).
- 11. Push the square power button (2005) to ON position.
- 12. Select the Horizontal Button (Live Picture) see Figure 1, push only once.
- 13. Press "Start" button (Green button).
- 14. Move the horizontal antenna slowly in any direction to view your target.
- 15. Image of survey will appear on your computer screen immediately.
- 16. Push the Square Power Button (2005) to the OFF position.
- 17. Push Square Power button on Receiver to **OFF** position.
- 18. On the System 2005 software click "Stop" button.

Using this mode you can scan with the horizontal antenna forwards and backwards!

Voyager unit along river taking live readings moving to and fro. Notice the Horizontal antenna is being held 5-10cm (2-5in) above the ground.





Quick Start Horizontal Antenna Normal Scan Automatic Pulse Mode

- 1. Batteries must be fully charged.
- 2. Create a Grid Pattern of where you are going to scan.
- 3. Connect Radio Transmitting Antenna (if using radio).
- 4. Connect PC Cable to 2005 (white plug).
- 5. Plug in Serial Cable into PC.
- 6. On your PC start the System 2005 Software.
- 7. Click on "NEW".
- 8. Select "Normal Graphics" and your "Com Port" (default is COM1).
- 9. Click OK.
- 10. Connect Horizontal Antenna (Blue plug) to 2005. Arrow on antenna must be on top side and pointing to the left.
- 11. Mark the starting position of your first survey line.
- 12. Push the Square Power button to **ON** position.
- 13. Select the user mode 10 50 (the values here reflect how many pulses will be sent prior to having to start a new line) see Figure 1 (push only once) display should now read "CPU is on at Press Green".
- 14. Press "Start" button (Green button).
- 15. At the end of every survey line a tone will sound. To begin a new survey line push the "Start" button (Green button) again and repeat for each additional survey line.
- 16. When completed push the Square Power Button to the OFF position.
- 17. Image of survey should appear on your computer screen, if no image appears then repeat steps 12 to 16.
- 18. On the System 2005 software click "Stop" button.



Figure 1

Quick Start Horizontal Antenna Fine Scan Manual Pulse Mode – Stored Data

- 19. Batteries must be fully charged.
- 20. Create a Grid Pattern of where you are going to scan. The count is 10 pulses per survey line.
- 21. Connect Radio Transmitting Antenna (if using radio).
- 22. Connect PC Cable to 2005 (white plug).
- 23. Plug in Serial Cable into PC (or as shown in Figure 2).
- 24. Connect Horizontal Antenna (Blue plug) to 2005. Arrow on antenna must be on top side and pointing to the left.
- 25. Mark the starting position of your first survey line.
- 26. Push the Square Power button to ON position.
- 27. Select the user mode M-10 see Figure 1 (push only once) display should now read "CPU is on at... Press Green "...
- 28. Press "Start" button (Green button).
- 29. Press Manual Pulse Button (Red button) once per grid coordinate. It is extremely important to receive an accurate representation of what lies in the ground that each pulse be evenly spaced from the previous pulse.
- 30. Push the Square Power Button to the OFF position.
- 31. On your PC start the System 2005 Software.
- 32. Click on "NEW".
- 33. Select "Normal Graphics" and your "Com Port" (default is COM1).
- 34. Click OK.
- 35. On 2005 push Square Power button to ON position.
- 36. Push Square Power button on Receiver to ON position.
- 37. Push "TO-PC" button on 2005 touch pad see Figure 2.
- 38. Push "Start" button (Green).
- 39. On 2005 push Square Power button to **OFF** position when display on 2005 reads "Memory to CPU EXIT".
- 40. Push Square Power button on Receiver to OFF position.
- 41. Image of survey should appear on your computer screen, if no image appears then repeat steps 18 to 22.
- 42. On the System 2005 software click "Stop" button.

M-10





Figure 2

Quick Start Horizontal Antenna Fine Scan Manual Pulse Mode – Live Data

- 1. Batteries must be fully charged (average operating time 1 hour with fully charged batteries).
- 2. Create a Grid Pattern of where you are going to scan. The count is 10 pulses per survey line.
- 3. Connect Radio Transmitting Antenna.
- 4. Connect PC Cable to Receiver (if using radio).
- 5. Plug in Serial / USB Cable into PC (or as shown in Figure 2 with the USB adaptor).
- 6. Connect Horizontal Antenna (Blue plug) to 2005. Arrow on antenna must be on top side and pointing to the left.
- 7. Mark the starting position of your first survey line.
- 8. On your PC start the System 2005 Software.
- 9. Click on "NEW".
- 10. Select "Normal Graphics" and your "Com Port" (default is COM1).
- 11. Click OK.
- 12. Push Square Power button on Receiver to ON position.
- 13. Push the Square Power button on 2005 to ON position.
- 14. Select the user mode R 10 see Figure 1 (push only once), display should now read "Extern Button on CPU is on at Press Green".
- 15. Press "Start" button (Green button).
- 16. Press Manual Pulse Button (Red button) once per grid coordinate. It is extremely important, to receive an accurate representation of what lies in the ground, that each pulse be evenly spaced from the previous pulse.
- 17. Push the Square Power Button on 2005 to the OFF position.
- 18. Push Square Power button on Receiver to OFF position.
- 19. On the System 2005 Software click "Stop" button.



Figure 1

Proper Survey Pattern







MOST IMPORTANT RULE:

The more exact you measure an area, your analysis will have a better representation and graphics will have a higher resolution. The impulse will be determined by the processor and will be transmitted in an interval of seconds depending on which mode you are in.

This means that each pulse must be equally distanced from point to point on every survey line in order to obtain a high-resolution surveyed image. Also by following a set pattern (see Figure 1) to survey a given area your readings will be easier to identify geologic objects.

Position yourself on the starting point, then choose your desired program and begin your survey immediately after pressing the start button (green).

It is suggested that you first test your equipment in your home/office to ensure that it is operating properly and that you understand how to retrieve data from your equipment before going into the field. A good test is to locate the underground utilities around your home or office.

ATTENTION! One signal doesn't mean you must move 1 meter! The pulses will vary depending on what size of an area and resolution desired. Pulses are determined by the operators forward motion.

Double –"X-ing" your Target

One of the most commonly asked questions is, "How do I know I'm looking at a real target?"

We call this procedure "Double-X-ing". This routine is extremely important, especially since the Future Series can detect to 18,7m.

To the right is an example of a cache that would typically be found.

The more times that you cross over a target at different angles and times of day will help in validating a good target.

Temperature, radio frequency transmitters, solar energy, ground mineralization, clay, salt water, etc... can interfere and cause erroneous conclusions.

Before you dig be sure to go over deeper targets (more than 2m/6ft) at least 4 times but it is recommend 8 times to be sure that you end up with the same or similar image of the location.

The finer the scan, the horizontal and vertical position of the antenna, automatic or manual modes are all contributing factors as to what image will appear on





your screen. For finer scans it is recommended to lay out a grid (string or chalk lines) and scanning the suspect location several times in manual mode.

Targets may vary; attempt to isolate the cache to its closest points prior to considering excavation. Remember to fill in all holes after recovery.

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Software Installation

Installing the FUTURE Series system software

1 Set the color depth of your computer to 16 bit.

2 Insert the CD into the CD ROM drive of your computer. The CD will start by itself. - <u>If not, please go on to point 4.</u>

3 If you do not have a CD ROM drive, please contact technical service to order the software on floppy diskettes (allow 2 weeks for processing).

4 Click "Run" in the Start menu. In the MS-DOS command line, type the following: D:\Setup.exe and press the Enter key.

If another letter than "D" was assigned to the CD-ROM drive, type this letter instead.

5 Follow the instructions on the monitor.

Note:

Since the original software was written in German the initial installation screens will read "Weiter" for next, "Ja" for yes, and "Abbrechen" for cancel. The easiest way for install is to follow all of the defaults and hit the enter key to continue with a default installation.

Repeat the installation if a message indicating that it was not completed successfully appears.

Please contact our telephone service or seek help in the user forum located at http://www.futuregpr.com if the second attempt also fails or if the software is faulty or missing.

After installing the software the very first screen that you get will be the following

After receiving this screen, please contact the Future Series Technical Support at +01.541.855.1590 to register your unit. For security reasons, please have your Unit Serial Number handy and all of your contact information. You may install the software on as many PC's as you wish. A new number will be generated for each unit. The XXXX's represent numbers.



Screen Breakdown

Stop 0 1 2 3 4	Scan Metal	
New Open Save Print Exit	0.0 * * 0.0 * * 3.8 * * 10.0 * * 0.0 * * 18.0 * * 13.0 * * 19.0 * * 19.0 * * 19.0 * * 29.0 * * 8.8 *	The numbers that are represented on the upper right side are displaying the percentage of colors being shown at any one moment, as you apply filters the percentages will change.
	metal mineral native soil cavity	This scale is the software making a calculated guest as to what is in the ground.
	25m 0m max. depth	This measurement here is representing the max depth in the present soil condition that the unit was able to detect.
	0.50 meters at 0.01	
	Depth at point of Cross cross-hairs. and le	-hair position (forward eft).

Screen Breakdown



Future Series Keyboard Shortcuts

F1 Key HELP Key

Displays the help screen

F2 Key = show / hide measure of depth

Pressing the F2 button once shows the measure of depth lines and pressing the F2 button again will hide the measure of depth line. The depth lines are moved by utilizing the "Move Up/Down Line of Depth" button on the screen or by using the "Page Up" or "Page Down" buttons on the keyboard.

F3 Key = show / hide wired graphics

Pressing the F3 button once will change the display from a solid image to a wired graphics image. Pressing the F3 button again will change the view to the solid image.

F4 Key = show / hide segment lines

Pressing the F4 button once will add segment lines to your image for a topographical view. Pressing the F4 button again will remove the segment lines.

F5 Key = move down bottom color plane

F6 Key = move up bottom color plane

F7 Key = move down top color plane

F8 Key = move up top color plane

The filtering keys (F5 through F8) are the most important keys on the system. They are used to highlight and filter targets that are not easily seen. For example if an old can is at a depth of 30cm and an iron pipe is at a depth of 1m then the can will show with a stronger return signal strength value. By adjusting the color planes you can make the iron pipe stand out very clear.

F9 Key = Project Information

This function allows you to make notes on scans taken. Notes that are helpful is starting point, ending point, distance between pulses, ground type, terrain etc. These are especially helpful for technical support as to have an idea of where and what surface was being scanned. Please include this information prior to sending scans to technical support. Failure to store information is also a good way to forget exactly where you were if there is an anomaly that appears when applying filtering to a scan.

Alt + F10 Key = Scan Metal

By clicking on this button the display will show the **"Strongest Return Strength Value"** metal may be masked by other properties in the ground. Non-Ferrous metals typically show up (color mode) as a light blue.

Alt + F12 Key = Set height (manually)

By using this function you can change the depth value of a particular value. The values are based between 1 and 255. The minimum depth setting is 1 and the maximum is 255. This function is used to correct errors on the screen and also to null targets.

0, 1, 2, 3, 4 Keys

Changes the quality of the image by increasing pixilation and remapping the image for better or lesser resolution.

F Key = Change color scheme

Changes the color scheme from full colors to gray colors

S or L Keys

Changes the language from English to German

Page Up and Page Down Keys

This changes the depth either up (Page Up) or down (Page Down)

Insert and Delete Keys

Controls the Zoom functions, "Insert" key to enlarge or "Zoom In", and the "Delete" key to reduce or "Zoom Out".

Home and End Keys

Controls the Depth ratio, "Home" key increases the ratio and the "End" key reduces the ratio.

User Notes

FUTURE Series may be used to select and document hidden foundations and objects without the need to perform any excavations.

This method has several advantages over geo-electrical, seismic or magnetic methods, particularly in areas close to the surface and up to a depth of 18.7m (60'), for example by offering quick results, which are easy to reproduce.

Therefore, FUTURE Series should be regarded as an appropriate supplement to those well-established methods.

The growing demand for non-destructive and cost-cutting measuring methods for analyzing various structures and objects, and a constant awareness of environmental protection matters require a constant development of new technology for application and technical know-how, which is continuously being developed further by our specialists.

Civil engineers, architects, municipalities, geo-physicists, archaeologists, the police and a number of other persons and institutions involved in solving various tasks and problems require information on the structure of objects to be examined.

This is where FUTURE Series represents an appropriate supplement to other methods.

FUTURE Series is based on an electromagnetic pulse method which can be used to select an anomaly in the target area, e.g. natural features such as a formation of strata, hollow spaces, level groundwater, but also buried objects such as pipes, tanks, boxes, etc.

Thus it is possible to recognize various structures.

The depth of intrusion depends on several factors, e.g. relative permittivity or highly mineralized ground. Depth indicated is an estimation, actual depth may vary.

For example, the energy may be reduced to a level causing the depth range to be reduced significantly in very wet ground containing a lot of clay and sand with a high conductivity.

Notes

Detailed analysis of the image

Rough measurement

Mode: Beginner's

10 points of measurement

!! Apply a blue color to the image by pressing the F6 key of your PC

Now add a little more color again by pressing the F5 key of your PC, and structures or hidden objects will stand out clearly.

The F5, F6, F7, and F8 keys are going to be your main tools objects that are hidden and not showing up as a strong return signal value.

Metal targets do not always show in red. If there are stronger signals closer to the surface then they will show up in red. When clicking on the "Scan Metal" all metal will not always show up. This function is just the software making its best calculated effort to show any and all metal that may be in the underlying ground.

Depths of objects may be more or less depending on the soil conditions. Indicated depths may not always be correct. Since this unit is capable of obtaining 10m (I-160) or 18.7m (2003/4, 2004, 2005) the software is attempting to properly display depth. Signal attenuation and soil conditions may trick the software into displaying an inaccurate depth.

Now rotate the scanned image using (on screen) arrows and view the representation from below. Using your PC's F5 key, add more color again.

Now, changes performed in the ground and objects lying at greater depths are visible. Rotate the image and pay attention to compact forms. Such places should be gone over again using a fine measurement!



Example: Field length: 30 meters

1. Apply color to the image by pressing the PC's F6 key. Now add a little color again using the F5 key of your PC, and structures or hidden objects at the surface will stand out clearly. In order to determine the depth of these surface portions: Go on to point 4.

2. If very deep portions are contained in the image, you may reduce the size of the image by clicking the <u>"Reduce depth"</u> box. Now you can keep a better overview when rotating the image.

3. Now rotate the image and view the representation from below. Add color again by using the PC's <u>F5 and F7</u> keys. <u>Now, changes performed in the ground and objects lying at</u> <u>greater depths are visible.</u> Rotate the image and pay attention to compact forms. Such places should be gone over again using a fine measurement!

4. Depth

Rotate the image so you can view it from above once more. Select <u>compact formations</u> using your PC's arrow keys (cross hairs). Now the depth and position of a formation appears at the bottom on the right. The strongest signal return value strength will always show at 0,0m.







Determining Depth

The process of determining depth is quite simple. After the image is on the screen then vertically rotate the image so that you are looking at it from a vertical prospective. Then horizontally rotate the image until you are looking at it in side view. The target may be measured either from the top or the bottom.

Adjust the depth line until it is at the opposite peak of the target. Not always are the peaks exactly the same shape (as seen to the right and below), significant peaks clearly stand out.

On the bottom right of the screen the depth meter will show the target depth. In the example to the right the depth is 1.70 meters and below 7.30 meters. The maximum attainable depth varies on soil condition and location of target.





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Software Notes

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EXAMPLES

In the example that is shown to the right the chamber is the hollow space (the black void in between the two peaks). Since chambers are a void the geophysical phase reader will have absolutely no reflection from it. Once the software has detected the void then it will look for the first objects in the area. The software will then calculate the signal return strength to give an image of what is possibly in the chamber





In the above example is a diagram of how the signals are being sent into the ground. The image below is an example of what a buried chest or container would appear like in the software. The visualization is such that the signal cannot penetrate the chest or container therefore creating a void directly under it.



Scan compliments of University of Texas.



In this example (shown above left) a scan was performed on a rock wall in Greece. The scan was done on the side of the wall looking through the wall from the side, not from on top. The blue areas in the wall are signifying the open air and space on the other side of the wall.

The image below is scanning the inside of a tunnel. The blue areas represent the strongest return signal strength of items in the cave. When viewing items inside of a cave or tunnel look for man made objects rather than colors. The return signal strength will be less when viewed through an open air space.



PROBLEMS WHEN TRANSMITTING DATA by RADIO WAVES

TECHNICAL FAULTS

Mistakes may appear through the course of data transmission if the range of the module has interference, the voltage of the instruments is insufficient, connecting lines are too long, there is other electrical equipment which disturbed by radiation or there happenings, thunderstorms or similar electrical phenomenon's.

The frequency of transmitting data lies in the amateur wavelength (approx. 450 MHz). That's why there could be losses by transmitting data within the effective range, too, or if there is another transmitter operating in this region at the same time.

Should there appear errors during transmitting data please act in the following manner:



Correcting a Fault Signal



If there are multiple fault signals on one screen, the above procedure may need to be repeated.

Nulling a Signal



The reason for nulling targets is there are some instances where a strong signal reflection is seen showing an obviously inaccurate reading. By nulling the signal you will be able to read the background images much clearer. This is an advanced mode operation and has proven to be effective many times.

If there are multiple targets signals on one screen that you believe are causing interference, the above procedure may need to be repeated.

Notes

Troubleshooting / FAQ's

#1 error realized by the Future Series is due to improperly or undercharged batteries.

Q. All of my scans come into the screen as all red.

A. Check to make sure that the Probe/Antenna is properly connected. Check to see if the Serial Cable is properly connected on both ends and that none of the pins are bent.

Q. Sometimes FUTURE Series shows objects where there aren't any! WHY?

A. Ground mineralization affects the return signal strength received by the equipment. Prior to assuming that an object lies in the earth or not can be tested by performing multiple scans over a supposed target. This will help in determining the exact position of the target. Also performing multiple scans will prevent falsely digging for objects that aren't there.

Q. When taking scans I always lose the last couple of pulses.

A. This is caused by improper counting of the pulses or data that is lost when transmitting via radio.

Q. Hardware Error Warnings – Call our Hotline!

A. This error is caused by turning on devices out of sequence. Please follow the "Quick Start Guides" in the exact sequence and the error(s) should cease. When the error appears push the "Ctrl" + "Alt" + "Del" keys simultaneously, find the Future software and hit "End Task". Afterwards restart the software to resume importing your scan.

Q. I am performing surveys on the beach and getting false readings.

A. Salt is a known inhibitor of EM signals. When performing scans on a beach expect that the depth readings will not be accurate to any degree.

Q. My LCD display has funny characters on it when I first turn it on.

A. Turn off your unit and turn it back on. If the LCD does not return to normal then please contact technical support.

Technical support is available +001 (1) 541-855-1590E-Mail:tech@futuregpr.com

When contacting tech support via telephone or via E-Mail, please have your unit serial number ready to speed the process. One hour of free technical support is included with the purchase of all Future Series units. Premium Technical Support is also available, please contact a sales representative for details.

Notes

Unexploded Ordnances

Unfortunately the event of war has transformed many countries into a scrap yard of explosive materials. A lot of these relics are still hidden in the ground yet.

If you receive a signal from FUTURE Series don't pick or dig wildly and impetuously to get this object.

First of all, you could damage a rare property and secondly this object could react "full of insult"!

Pay attention to the color of the ground.

Red or red colored grounds point to oxidation of iron or steel, point to rust. Pay attention to the form of the found property!

Round or bended properties should be a sign of alarm for you, especially if you see knobs, rings or plugs on them.

The same is in force by any munitions.

Don't touch it, don't take it home; leave it in its place.

The "machines of death" knew a lot of diabolic things, for example detonators in various designs and forms- they worked by acid, by contact and so on.

Many of them have become rusty, but a touch may detonate the ordnance. There aren't any harmless munitions or weapons.

If you find such properties mark the location and inform the proper authorities!

There is always a danger for children, farmers, walkers, hikers, etc...

Future Series 2005, Voyager, & Extreme Plus

Future Series Limited Warranty Information

Accurate Locators Inc. ("Accurate") warrants your consumer or industrial geophysical product ("Product") against defects in material or workmanship for a period of one (1) year from the date of purchase. If Accurate determines the product to be defective in materials or workmanship, Accurate will replace or repair the product to the original purchaser only. To obtain warranty service worldwide, call +1 541-855-1590 or visit us at www.futuregpr.com. Please include a written description of the problem encountered. A Return Merchandise Authorization ("RMA") will need to be obtained prior to returning the equipment. If equipment is returned without a RMA it will not be accepted.

REPLACEMENT OF THIS PRODUCT AS PROVIDED UNDER THIS LIMITED WARRANTY SHALL BE THE EXCLUSIVE REMEDY OF THE CONSUMER. ACCURATE SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGES, INCLUDING CONSEQUENTIAL, INDIRECT AND INCIDENTAL DAMAGES, ARISING OUT OF THE USE OF, OR INABILITY TO USE, THE PRODUCT OR FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY OR CONDITION ON THIS PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY LAW, ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some states/jurisdictions do not allow limitations on how long an implied warranty or condition lasts or exclusions or limitations of consequential or incidental damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state in the U.S. and Puerto Rico or from province to province or territory in Canada.

Accurate's warranty is for repair or replacement only of products that proves to be defective in workmanship or material subject to the warranty period and any other conditions set forth on the package. Physically damaged merchandise or merchandise where control seals are removed or damaged is not covered under warranty. Customer is responsible for all shipping costs to and from Accurate. Requests for refunds or exchanges for other equipment should be directed to the retailer. It is at the retailer's own discretion as to allow for a refund or exchange of product.

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