

# Metal Detectors & Accessories

**DEEPTECH<sup>®</sup>**

## **Pulse Induction Metal Detector**



## **MEGAPULSE III**



# Introduction

Megapulse III is a new generation of pulse induction metal detecting instruments. The pulse induction system is developed to automatically retune, so that changes in the ground mineralization and unwanted metal targets are eliminated. The unit works at great depths and ranges by smooth and stable operation from the control unit in automatic motion mode.

## How does MegapulseIII work?

The search coil sends out short magnetic pulses and produces a strong magnetic field above the ground. The magnetic field induces eddy currents in the metal objects to be detected. These currents generate a secondary electromagnetic field, which flows outward from the target. A portion of this secondary field passes through the antenna winding. This signal is processed by the electronics and displayed by a ticking rate, meter response. The timely decoupling between the transmitting and receiving phases allows the MegapulseIII to work with an increased transmitting and receiving power.

## MegapulseIII controls

### Control unit

#### **1 Delay Control**

**a. Sets the Delay timing for various soil conditions.**

#### **2 Sensitivity Control**

**a. Sets the Sensitivity for the coil.**

#### **3 Interference Control**

**a. The ability to tune out background interference caused by electrical lines in the area.**

#### **4 Threshold Control**

**a. Used to ground balance the detector.**

#### **5 Mode Selector**

**a. Ability to select between “Auto/Semiauto”**

#### **6 Reset Button**

**a. Used to reset the threshold and re-balance instrument after changes are made.**

#### **7 Signal Intensity Meter**

**a. Indicates the intensity of the received signal.**

**DELAY-**This knob changes delay in pulse induction signal. Far left position is for Beaches or Very light soil minerals (signal bounces back to control unit fast with small delay). Set switch top center position for standard or general operating conditions. Far right position of knob to work in heavy mineral ground or VERY deep and large targets (allows signal to reach depths and return to unit...also mineral readings are more dissipated).

**INTERFERENCE-** Setting for electromagnetic disturbances (i.e. Power Lines)

**INTENSITY METER-**Shows target intensity as getting closer to metal and also indicates battery life when unit is first turned on. Battery is good if in the “battery good” level. Charge otherwise.

**On-Off/Sens-** knob to turn control unit on, show battery voltage when turned on, and change how sensitive the coil is to metal targets. Far left position is for very large or near surface targets. **BLACK DOT** on control unit label is for standard detection setting. Far right position is for the highest sensitivity to targets. Setting too high will receive all nearby metal targets. Turn down knob if unit is active too often.

**TRESH-**Is threshold or beginning of detection audio (sound). Set Threshold to give one or two “ticks” per second.

**RESET-** Button to reset control unit in new ground conditions. Depressing button one or more times is needed in each new target area or if any other settings are changed. Pressing reset over metal will ignore similar metal targets. The machine needs to be reset over a clear area (not on targets), not including minerals in ground.

### **Rear Panel of Control Box**

**Built-in loudspeaker -** For audible target indication

**Safety Fuse –** MegapulseIII is protected against feedback.

**Phones -**An outlet for any type of headphones with a .” mono-jack.

**12V DC -**Female plug that adapts male end with center positive for external 12 Volt rechargeable battery pack. To charge battery, remove from Velcro strapping on back of control unit case. Plug rectangular male plug from charger into matching female plug on battery. Location is opposite side of black control unit battery plug. Do not alter battery plug or charger end.

**Coil -**Connector for search coil. Lightly screw down in a clockwise direction.

## **STANDARD SEARCH**

**(1m x 1m Coil)**

**The loop cable is embedded in PVC tubes and can be assembled for use or dismantled for transportation easily and quickly. The concentrated magnetic field of the coil allows an excellent detection range on relatively small metal objects. Targets the size of a cash box are clearly detected from a distance of 7-8 feet. Larger targets like a large metal treasure chest can be detected at a range of up to 15 feet or more depending on soil conditions. Our practical tests have proven this universal search coil as the best one for treasure hunting with the MegapulseIII.**

## **AUTOMATIC MODE**

**(1m x 1m Coil)**

**The detector retunes automatically to the changes of the ground conditions (mineralization). Keeping constant operational height and all the slowly changing external electromagnetic fields are not critical for the stable performance of the MegapulseIII pulse induction system.**

**REMINDER: Automatic Mode is motion detection. The search coil needs to be moved completely through the target area.**

## **DETECTION RANGE**

**Theoretically the detection range increases with the increased target's size, time in ground, until the size of the detected object is double the surface of the search coil. Smaller coils of approximately 11" diameter have a specific range of objects, which are detected well. Continuous wave detector's sensitivity is better on small metal targets. Such coils and detectors have reached their limits with a detection range of approximately 1 meter. Enormously large amounts of metal would be necessary to increase their detection range over these limits. The search coil of the pulse induction detectors could be increased to almost any size, so that a large long ranging magnetic field would be built up. The MegapulseIII works using a magnetic field caused by short pulses. The large search coil and the low frequency applied make it capable of penetrating deep into the ground.**

**The MegapulseIII pulse induction principle offers many other advantages:**

**. Large detection range and extreme depth of detection**

- . Small objects like bottle caps, pull tabs, pieces of aluminum are rejected
- . The device can be operated effectively in highly mineralized soil areas, beaches, fresh and salt waters.
- . High quality components are used and all critical parts of the circuit are designed to align themselves to signal drift due to changing temperatures
- . The hot rocks are categorically ignored
- . MegapulseIII is a professional deep treasure-hunting instrument with its incredible depth detecting capabilities.
- . The unique automatic motion mode of operations makes it user-friendly even for the beginners

### **Quick Start Guide:**

1. Make sure battery is fully charged.
2. Attach the battery to the carrying case.
3. Plug in battery to back of unit.
4. Connect the coil to the shaft.
5. Connect the coil to the back of the unit.
6. Set the "Interference" knob to the middle position.
7. Turn all other knobs to the left (counterclockwise).
8. Set your Mode (Auto/Semiauto).
9. Turn on unit and set the Sensitivity Knob to the black dot.
10. Slowly turn the Delay knob to the right (clockwise) until the unit is not making any more noise.
11. Slowly turn the Threshold knob to the right until you are just hearing one to two ticks per second.
12. Move in a forward, left, or right direction keeping the coil level.

**Do not push the reset button over metal targets. This will clear them from being seen again.**

**After re-adjusting the delay or sensitivity you may have to push the Reset button more than once in order for it to correct against the background.**

### **FIELD GUIDE**

1. Assemble the search coil and connect its plug to the jack on the rear panel of the control box. Lift the coil at the operational height (3-6 inches) over a place free of any metals.

- 2. Attach Antenna Belt Straps (2) to coil and adjust for comfortable level (for 1 Meter coil ) only.**
- 3. Attach battery connector to back of control box for power.**
- 4. To start, all knobs are FIRST set to “0” or off position at farthest left.**
- 5. Select the position switch appropriately to detection mode desired (see control panel description).**
- 6. Stand in working position- level coil distance on both sides- and AVOID all close metal under coil for correct balance.**
- 7. Turn “Delay” knob to desired position for target detection (see panel description for choices of delay). Push the Reset Button.**
- 8. Turn “Interference” knob to center position when no interference from electromagnetic interferences is present. If interference is shown from other than ground metal, tune knob from left to right appropriately until interference is removed (do not move other knob positions after setting interference setting. Push the Reset Button.**
- 9. Turn on unit with “sensitivity” knob to small black dot on MegapulseIII control unit faceplate label as standard target operation mode. Lower sensitivity at far left for very large or shallow targets, or highest sensitivity at far right of know position for very small or deep targets. Too high of a position will set detector off at every small metal change. Battery voltage is shown in “Battery good” portion of meter by needle if no charge is needed. Drop in voltage will cause incorrect readings and balance. Charge if line indication is shown below this mark.**
- 10. Push Reset button one or more times to balance machine.**
- 11. After following all previous instructions, begin to slowly turn “Threshold” to setting where one or two “ticks” are heard. This should leave needle on meter at or between “0” and “1”.**
- 12. You are now ready to detect. REMEMBER this is a “motion” detection system, so do NOT stop when receiving a metal detection signal. Walk all the way through the target. Mark with your foot on ground where signal is first read between coil parts and once signal stops. This makes TWO sides of a box. Simply walk the opposite direction of target signal (making 4 sides of a box). Mark once signal is received first and then when stopped. You should have four marks on the ground. You can then pinpoint with 11” coil.**

## **Practical use**

**Searching with the MegapulseIII is easy, when two persons bring the standard search coil. One of them carries the electronics box (at the opposite to the search coil side and trying to keep the electronics box as possibly far from the search coil’s frame), watching the indications and making adjustments during operation.**

**You should not carry watches, belt buckles or metal plates in your shoes, as they could cause false signals if close to the search coil.**

**Walk normally, and if the terrain allows it, carry the search coil at a lowest possible and constant level operational height over the ground.**

**The small shallow metal objects will produce two peaks of the ticking-rate/meter deflection . Lifting the search coil could cut out such small sized objects. There are some trashy areas, where bringing the coil higher would be advantageous. A mid-sized metal object buried at one meter or so, will give a very clear, distinguishable indication. A Large metal target deep in the ground will cause a long indication over a larger area than the smaller metal objects.**

**With some practice you may be able to estimate the depth (shallow targets only), the size and even the form of the target detected. The best way of getting acquainted with your detector and its responses to different metal targets is to locate your buried metal pipes around your home. Of course, the reaction of the detector would be much better if the metal targets have been buried in the ground for a longer period of time (like 30 to 50 yrs). Walk the test area making sure that you are passing all the way through the target until the unit is quiet again. Make necessary adjustments to your detector, and tune it carefully away from the targets. Try to carry the coil 2-6” high, if the terrain allows that. Pass over your buried utilities. Note the differences between the indications of the targets.**

**Being in Automatic Mode, stop over one of your targets. In few seconds the detector will tune itself to this metal object. You’ll then be aware of that through the ticking rate, which has already become normal, as set by the manufacturer for the Automatic Mode. Move aside. Pass over the same target, this time not stopping your movement over it, and the detector will register it again. So, don’t stop the search coil’s movement over a metal target while operating your detector in Automatic Mode.**

**While testing the detector, please note the following:**

**-Try to keep a constant operational height of the search coil.**

**-The detector is very stable while in its Automatic Mode of operation.**

**MegapulseIII successfully compensates the effects of the changes of the search coil’s operational height, and retunes automatically to the changes in the ground conditions and to the slowly changing external electromagnetic fields.**

**-MegapulseIII is a typical motion detector. This means that the search coil should be moved over and through the metal target, if you stop your movement, then the detector will automatically retune itself and you’ll loose the target.**

**-The loss of depth during the operation in the Automatic Mode could be due to incorrect tuning of the detector.**

## **General Notes**

### **Interference**

**In most of the cases interference is due to magnetic disturbances like power lines and may make detection difficult. Heavy current cables nearby could cause severe interference. Magnetic effects of soil, and its high mineralization could also cause interfering signals. To reduce them, see “field guide” for detail of interference removal operation.**

### **Maintenance**

**Do not store the detector if the device is wet or dirty. Keep the connectors and jacks dry and clean. In case of malfunction, first check the battery voltage and the cable connections. Repair work should be carried out only by trained personnel. Inexperienced intervention would cause expiry of the warranty. Tampering with the seals will void any and all warranties. Either expressed or implied. Unit has no user serviceable parts. Unit has no internal batteries.**

### **Batteries**

**We suggest using a Multi-Meter to test the battery voltage prior to using instrument. Overcharging of batteries may cause the unit to cease operation. You should be able to run the instrument for 16-20 hours prior to recharging the batteries. Charging time on empty battery is max.14 hours.**

### **Storage**

**Store your equipment in a clean dry place. Excessive moisture may cause damage to your equipment. Traveling from a cold area to a hot area may cause condensation. If the conditions for condensation are present, give the equipment time to adjust prior to turning on.**

### **Permission and Laws**

**Prior to searching and digging you must have permission to search private property from the owner or caretaker. Know the laws that apply to the area you are going to search in. Laws vary a great deal with the City, County, State, and**



**Country, regarding the use of metal detectors. Be respectful of public and private property, and the laws, which govern the use of metal detectors, and fill all holes after recoveries.**

### **Troubleshooting**

**My unit does not maintain its ground balance.**

**Check the battery. In most cases an undercharged battery will cause this to happen.**

**- or -**

**There could be spots of mineral content that you are trying to balance device over.**

**- or -**

**When balancing unit you are holding the unit too high off the ground, or directly on the ground. Hold coil 12”–16” (25cm to 35cm) above ground to balance initially.**

**I found a metal object, re-tuned my detector, now it is gone. Why?**

**You re-tuned the detector while still in the field of the metal target. You have discriminated out the target you were looking for.**

**I cannot get the unit ground balanced.**

**Adjust the Interference. It is possible that you are too close to an electrical source and the source will have to be tuned out by turning the knob either to the left or the right.**

**My battery connection keeps coming loose.**

**With battery disconnected, open the two prongs on the control unit to allow for better battery contact.**

**It beeps and there is no target. Why?**

**Minerals with round and square coil are patchy sound and usually are not identifiable more than twice.**

### **Technical Specifications:**

- **Working Voltage 12v DC**
- **Continuous Power Consumption 190mA**
- **Maximum Power Consumption 380mA**
- **Working Frequency 100-130Hz**
- **Sound Range 0-10000Hz**

- **Battery Type -Rechargeable 1,3 ( 2,3 – optional )Ah,hermetic,acid Battery**
- **Battery Charging Time (empty) 14 Hours**
- **Charger Output 14,6 VDC 500 mA**
- **Charger Input 100/240 V 50/60Hz AC**

**This device is designed for detecting deeply buried or lost metal objects, metal pipes, underground communication equipment, treasures and similar objects.**

**The unit works by the principle of electromagnetic induction at very low frequency, which allows penetration deeply in the ground. Soil conditions vary from area to area and actual depth may vary depending on the dielectric properties.**

**The depth, combined with iron object discrimination, automatic tuning and the choice of different regimes for searching, make the unit hardly replaceable in a lot of situations.**

### **Limited Warranty Information**

DeepTech warrants your consumer or industrial product against defects in material or workmanship for a period of two years on the electronic box and one year for the search coils from the date of purchase.If DeepTech determines the product to be defective in materials or workmanship,DeepTech will replace or repair the product to the original purchaser only.

Any alternation of the electronic circuit by an unauthorised person will lead to breach of warranty.

This warranty does not cover damage due to a fall,shock and accident; deteriorations due to an anormal use; cable breakage of the search coils or of one of its conductors.

If warranty service should be necessary, the detector must be returned complete with proof of purchase and a notice explaining the fault.

DeepTech reserves the right to change the design or specifications of its detectors without notice.

Notice

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<http://www.deeptech-bg.com>  
e-mail:[office@deeptech-bg.com](mailto:office@deeptech-bg.com)  
Tel./Fax:+359(54)887028