ACCUMASTER-PRO *digital*

UNDERGROUND GEO SURVEYOR

Electronically Checks Ground Resistivity Between Probes For Correct Metal/Mineral & Treasure Location Size & Depth.

KNOW WHAT IT IS ... WHERE IT IS... AND HOW DEEP IT IS!

- 24,000 to 35,000 (with extension wire) Square Foot Search Area
- Determines Depth Down To 125 Feet
- Digital display meter & Light Indicators
- Includes 12 Volt Battery & Charger, 110 V Inverter For Field Locating
- Quick In/Out Copper Coated Rods with fast on/off rod clips
- Easy To Use - Lightweight, Compact & Sturdy Case

Accurately Locates With Its Simplified display & Light Indicators For Easy Reading

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FREQUENTLY ASKED QUESTIONS ABOUT THE ACCUMASTER

What is the principle of scientific operations of the ACCUMASTER-PRO DIGITAL?
It operates on the principle of resistivity. It measures ground resistance between ground probes which are put in the ground in the area where the suspected target is located. It compares the results to known readings from various metals and mineral to the higher background reading.

How will I know if I have located the gold/silver, water, or if there is a cave or tunnel below?
It has an ohm resistance LED display, which will tell you what is below the surface, also a light indicator.

How big of an area can I search at a time?
A 20,000 to 35,000 square foot search area with extended wire.

Is the ACCUMASTER-PRO DIGITAL difficult to operate in a conductive salt layer?
Yes, and in order to tell if you are in a conductive salt layer you need to test the dirt. In the instructions it tells you how to put a sample in a plastic bucket and test it.

What size of a target will it find? It pinpoints 5 lbs. and up which has been buried for a period of time.

How long does the target have to be buried before the ACCUMASTER-PRO DIGITAL will find it?
It is for long time buried targets not for freshly buried ones. For example: a rusty nail, copper, etc. acts like a buried battery. Copper sulphate can expedite the process. We have 5 lbs. buried at 3 feet for 7 months, but it was only recently that we could see the lower resistance reading on the ACCUMASTER-PRO DIGITAL.

Will it find a target surrounded by air or in a glass or plastic container?
No, the current will not jump to make a connection to show resistance.

Does the conductive layer of the earth have an effect on the response of the rods that are put in the earth to get an accurate reading?
Yes, check the dirt in a plastic bucket. Sometimes you may find a conductive layer in the earth.
Example: Chemicals, salts, volcanic conductive layer minerals like gold, silver, & copper.
A cache was found in the Philippines. The rods needed to be put deeper than that low ohms layer to get a true reading below. They were put 4 meters (drilled) before sending a carrier wave. Remember, they are measuring ohms of resistance between 2 points at a time and there are different conditions in our planet which need to be accommodated for to get good results.

If gold exists inside a void will the ACCUMASTER be able to find it?
Our ACCUMASTER locators have high voltage power to penetrate inside voids. 60 volts and 80 Watt power, so that the signal is not limited on such cases. This power can not be found to other locators on this class. Therefore if there is gold inside a void and the gold is making a good contact with the ground it can be found. Contact with the ground can be made also when the gold is inside a container like ceramic or metallic.

Can it penetrate a wood or iron container to show the gold target inside? Wood is not conductive, the electrical signal will penetrate wood just like it penetrates the normal ground. An iron container however will increase the OHM readings, still the target will be clearly distinguished from the background soil readings. On some cases the indication stays between the "Iron" and "precious metals" marks, if the gold inside the box is not electrically insulated (not inside a glass, plastic, etc shield). On some other occasions, where the iron container was very much corroded, the indication shown "precious metals".

! **NOTE:** Please consider some answers to the questions above can vary according to ground mineralization, faulting, conductivity, dampness, temperature, humidity, & so on...

Thank you for your choice in purchasing the ACCUMASTER-PRO DIGITAL geophysical locator.
At first when you receive your unit you will probably be somewhat concerned as to the seemingly complex operation, but rest assured, the diagrams and instructions will become easy to understand and use with just a little reading on your part.
It is important that you read the following instructions carefully so that you can obtain the maximum benefit from your locator. Please remember that only practice and constant use in the fields will ensure perfection of usage. Before you get involved in operation, you should have a basic understand of just what principle is involved and how this "electronic geophysics resistivity locator" works to locate metals, minerals and voids.

FERF (FREE ELECTRON RADIATION FIELDS)

To begin all matter is made of atoms and molecules. Atoms differ in structure based on what type of molecules they make.

The simplest molecule is that of the hydrogen atom. It consists of one proton and one electron.
Hydrogen has only one electron and it is easily taken away by other atoms. As an example: oxygen steals two atoms of hydrogen to form a molecule of what we know as water.

This new combination "water", as a molecule spins at a given molecular frequency. We can disrupt this new "water" by exciting the molecules by hitting the frequency with power. This result is best known as "micro wave cooking". That is why anything with water in it can be cooked, and very quickly, in a microwave oven.

By now, you probably are asking yourself how talk of atoms, molecules and microwave cooking could have anything to do with underground location of metals.

The important thing for you to understand is the principal…that all matter has a molecular "spin" to it and that if any type of atomic structure is excited…it produces energy!
This energy can manifest itself in many ways, heat in a microwave cup of coffee, a glow, vapor like steam or even a smell. In our particular area of interest, this energy produces FERF…Free electron radiation fields.

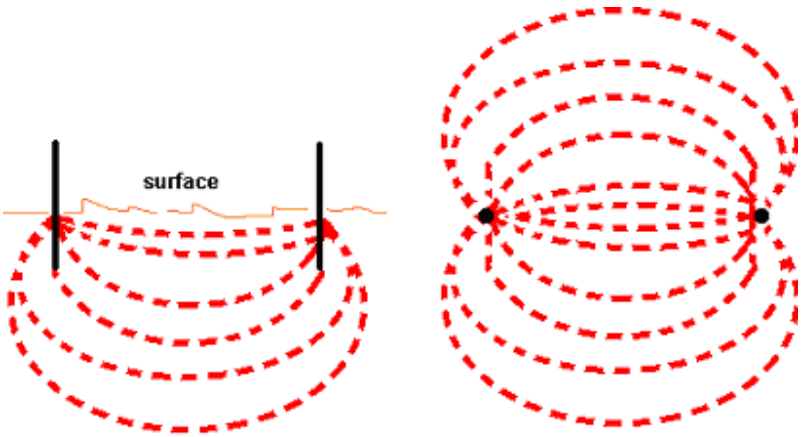
All FERF are detectable. Some are very weak but with the right equipment they can be detected.

In order to detect a FERF you need to know what to look for. The field of a FERF is very similar to a radio station transmission, which starts out a perfect circle of radio waves but soon varies in shape and size due to power and other obstacles in its way. The same can be said of a FERF.

HOW IT WORKS

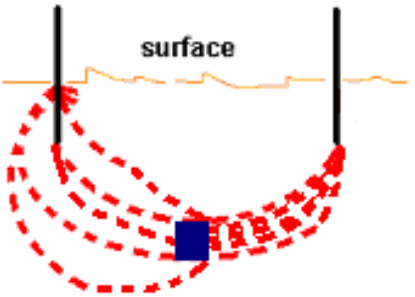
The ACCUMASTER-PRO DIGITAL has a variable power consumption circuit and uses very little power when the ground is inert or poor in conductivity. It has a maximum power of five amps, more than enough to allow the strongest conductor of precious metals to show its presence. When a strong, low frequency signal is transmitted through the ground from one ground probe (or rod) to another, the wave is used as a "radio carrier". The DC wave generated by a 12 volt battery is capable of traveling only a few inches through the ground. Changing the DC wave to an AC wave (also called a carrier wave "CW") allows it to travel much further at low frequency.
The wave will take the path of least resistance to travel through the ground. The CW easily travels through precious metals. If metal is in the wave's trajectory, the wave encounters resistance along its path. In this case, a "stronger" CW hits the receiving probe. This is how the **TARGET RESPONSE LAMP** on the ACCUMASTER-PRO DIGITAL lights when a highly conductive (and therefore less resistant) target is located.
All precious metals suffer a slight deterioration due to acid rain, snow, and other chemicals. When acid and ultra-high radiation contact metals, free electron radiation fields (FERFs) are created. The longer the object is buried, the stronger the field. Carrier waves are attracted to FERFs. As the CW sinks into the ground it has to disperse. By creating a strong charge that sinks into the ground, the CW will find the FERF, tune automatically to it and follow it.
This instrument works on underground resistivity, measuring the total ground electrical resistance.
If it tells you of a high resistivity underground, you can bet, that there is nothing worth digging for.
If, in the contrary, the instrument show a low resistance on the meter and the target lamp is lit, the light shows a good conductor is absorbing the power due to a strong battery charge of the metal, producing the FERF.
Imagine if you will, the kitchen light that dims, when the starting motor of the refrigerator kicks in and takes a big portion of the power available in the circuit.
The ACCUMASTER-PRO DIGITAL has a special variable power circuit that activates the lamp at varying degrees of brightness: the more power the target is stealing, the brighter the lamp.

Those of us who look for precious metal have tried many methods over the years but none have been perfected to the level of the ACCUMASTER-PRO DIGITAL.

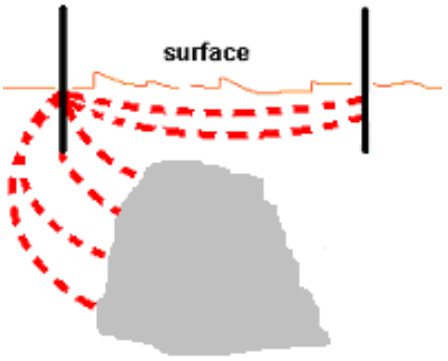


section through ground indicates wave paths

top view, waves that radiate outwards of rods axis



The CW paths are attracted to the FERF of a metal object, resulting in low resistivity



The CW paths have a limited penetration through a void, resulting in high resistivity

The ACCUMASTER-PRO DIGITAL panel

LAYOUT

The ACCUMASTER-PRO DIGITAL operates with 5 Amp / 60 volts, and can be used safely except on rainy days.

CAUTION !

ALTHOUGH EVERY PRECAUTION POSSIBLE HAS BEEN TAKEN TO PREVENT ANY SHORT OF "SHOCK" , WE RECOMMEND THAT THE LOCATOR NEVER BE USED IN THE RAIN OR WHEN THE GROUND IS EXTREMELY WET. A SHOCK HAZARD COULD EXIST.

Included with your purchase is a 12 volt battery and a 220 volts charger.
The **POWER READY** indication will come on and stay on as long as a power supply exists.
There are 4 **GROUND PROBE JACKS**.
And 4 x 100 ft. wire spools plus 4 ground stakes. Each ground stake is connected via a spool wire to a jack to the locator main panel.
A carrier wave transmits by pressing a **TEST SWITCH** numbered 1-2, 3-4 etc. This wave transmits only between 2 stakes at a time. We can scan areas up to 24,000 sq.ft. In case that you increase spool's wire you must calculate 10% less of target meter indication for every 10 ft. of extra wire.
Meter indications present total ground resistivity between stakes. Ground minerals have a minimum effect, if the specific soil is a bad contactor for example dry sand or very loose ground the bar reads high in OHM.
If ground minerals are present then low Ohmic resistance will indicated. Also gold, silver veins and treasure hoards show low readings in OHM and high conductivity. Very increased indications will present tunnels and voids when rod connections are tight.

BASIC OPERATION

Place all rods in a rectangular pattern, with instrument near center. It is better to start scanning on a 24,000 sq.ft. area, with all 100 ft. wire extended. Except the suspected target is in a smaller defined area. In such case place rods closer, by testing ground conditions.

ATTENTION

Ensure that there is a good connection between rods and wire clips, also between ground and rods.
Clip the rods coating near the ground. Bad connections give bad indications, unstable or high OHM.
Copper rods can be used when searching in loose ground.
In areas with a volcanic surface or high conductivity surface layers (for example intent agricultural chemical works) put rods deeper to achieve accuracy or remove surface soil and then place stakes. When operate in hot environment cover locator panel with a white towel.

FRAME OF REFERENCE

The earth is composed of many layers, first the top dry layer, then the alluvial deposits, sediments, clay, sand, organic plant life. Rocks of all kinds etc., all this in combination will produce various readings.
You should make a FRAME OF REFERENCE of the ground you are planning to scan. Check what readings produce that specific soil. From this you will be able to determine when you are encountering "true" lower readings on one or more "rods".

For example, Beaches, due to salt, are low in resistivity, farm lands with fertilizers (acid ground due to agricultural works) will produce lower readings than average but you will be still able to recognize solid metals…or you should move to a lower scale, re-zero the meter and scan again.

Other example, Some inert grounds will produce very high readings, i.e 3000-4000 ohms, as your frame of reference. If the reading drops to 1200 it is usually a water deposit and if it is significantly below that, (900-800 ohms) it is metal probably iron, any lower readings (750-600 ohms) it is a precious metal.

Sand dunes, due to the lack of mineralization, cannot be scanned effectively.
The ACCUMASTER-PRO DIGITAL relies on minerals in the ground to conduct its "carrier wave".

LIMITATIONS

Freshly buried targets do not indicate true readings. Targets must be buried deeper than 2ft to be detected.
Objects in a glass container can be detected only if contents make a good connection with containers metallic lid.
Mineralized soil is a must for carrier wave transmittance.
The locator do not operate in sand, dunes, very loose ground, gravel, hot or rainy days. If gold or silver exist in an iron box carrier wave detects box not the container. Gold/silver can be detected inside tunnels, but OHM's will read higher than other places. Practicing will permit operator to evaluate readings of good targets.
A 12volt battery can be used as power source. A charger is also supplied. 30 to 40 hours of operation between every battery charge are achieved, if we turn off instrument when shifting or removing rods.
Be sure that red alligator clip is connected at battery red (+) terminal indicator and black clip at black (-).
POWER READY light come on when there is a proper locator power supply.
If **POWER READY** fails to come on, replace 5 Amp. fuse.

NECESSARY TOOLS

Rubber gloves to protect from electrical shock, water for the rods when working on extremely dry conditions, wire pliers for unplugging the rods, screwdriver for the fuse compartment, white towel to keep cool the panel on sunlight, hammer to properly fit the rods to the ground, notebook to keep a record of readings with rods layout and distance between each other, pencil.

BEFORE YOU START MEASUREMENT

1. Check battery condition
2. Make a sketch with rods numbered in the desired pattern (rectangular, parallel, line etc.)
3. Check good connections at all points
4. Read meter and note indications. Commence with rods #1 & #2.

NEVER MOVE ANOTHER SWITCH OTHER THAN THE ONE YOU ARE TESTING.
DOING SO MAY DAMAGE THE CIRCUIT

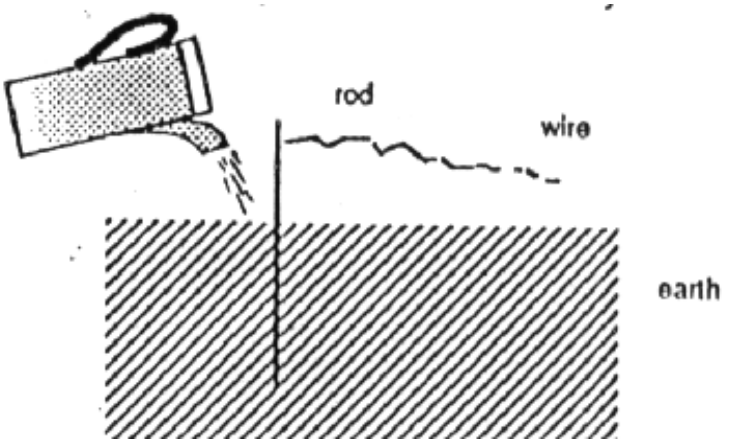
Every good conductive material Carrier wave hits underground reduces meter OHM figures.

! ATTENTION: TARGET RESPONSE LAMP is weak with high conductive OHM (iron) while it's bright with low - like copper, gold or silver.
When searching an area we should make test measurements to determine ground conditions.
Usual readings of ground minerals are 1300 - 6000 OHM. Sometimes large mineral concentrations produce even lower readings at 75 - 600 OHM.
A method to determine ground conductivity is to fill a big plastic bucket with dirt and then put rods separately and send a carrier wave.
Sometimes when a low reading occur without an obvious target then the dropping in readings comes from mineral concentrations, salts from agricultural activity and ground chemicals.
In some areas may be necessary to drill rods deeper into the ground to avoid these surface conductive layers.

IF BY MISTAKE THE RODS TOUCH EACH OTHER, OR MAKE AN ELECTRICAL CONTACT BECAUSE OF ANOTHER PIECE OF METAL WHEN A TEST SWITCH IS PRESSED,
THE TARGET RESPONSE LAMP WILL BURN OUT DUE TO OVERCHARGE.
NEVER ALLOW THE RODS TO SHORT CIRCUIT TOGETHER!

OPERATION

Wet slightly and equally the rods connection point with ground, if it is completely dry



A. place instrument at center of investigated area

B. Put rods tightly in the ground 1ft. deep, in whichever pattern desired

C. Connect the battery. Turn off locator when shifting / removing rods

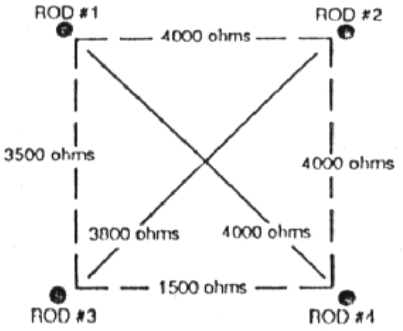
D. Put wire alligator clips at rods and close to the ground, then at the numbered **GROUND PROBE JACKS** on panel. Press **MAIN SWITCH**, the locator is now ready to operate and **POWER** indication lights

E. Press **TEST SWITCHES** each one for 2 - 5 seconds. Checking all sides of your pattern.
If a 25% difference on readings occur on a specified switch number area it worth's a further investigation, even if it not indicate a good target, just focus on that area and measure until readings get more clear, for example a 15 ft. X 15 ft. area. See also examples. If you receive a bright light indication shift rods from different points until you pinpoint the target. If no indication received try moving on an other area

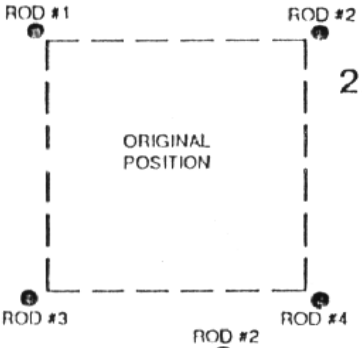
F. Numbered **TEST SWITCHES** help to understand the area between probes that is scanned (1-2, 3-4 etc.)
To search the sides of rectangular pattern (vertical or horizontal) position **BANK SWITCH** at **TOP**,
for measuring diagonals position at **BOTTOM**

G. Record the readings in your notebook, by making a sketch of the rods pattern.

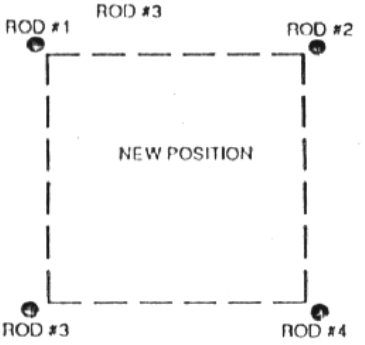
LOCATION/PINPOINTING IN THE SQUARE FORMAT



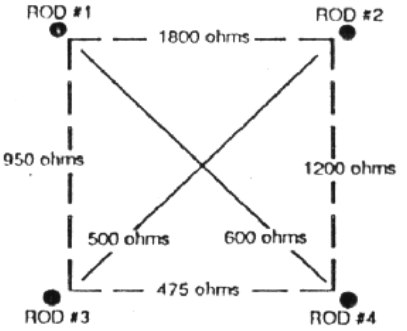
1. Lets assume you have set up to square pattern as shown at the right, 100 feet between rods. You are scanning 10,000 square feet. You have written down the readings as shown. Notice that the reading from Rod #3 and Rod #4 , the bottom of the square is 1500 ohms, this is a water indication of a target.

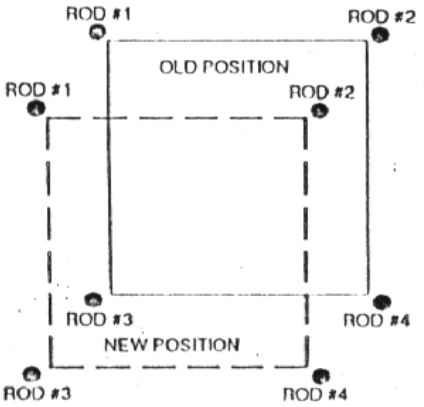


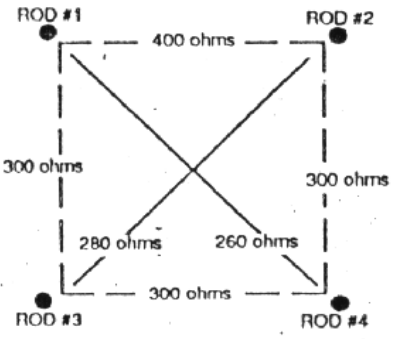
2. Reposition the rods to a new location, slightly below and to the left of the original area, we are moving toward the lower readings, i.e. the 3500 ohm and 1500 ohm readings.



After you have taken the readings, let's assume they are like these shown below. Notice that the lower readings are still toward the bottom left.







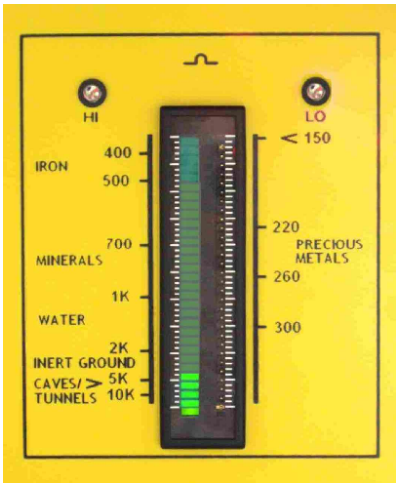
3. This would indicate that you have positioned yourself in the center of "gold or silver" target.

OHM DISPLAY & LED BAR SCALES

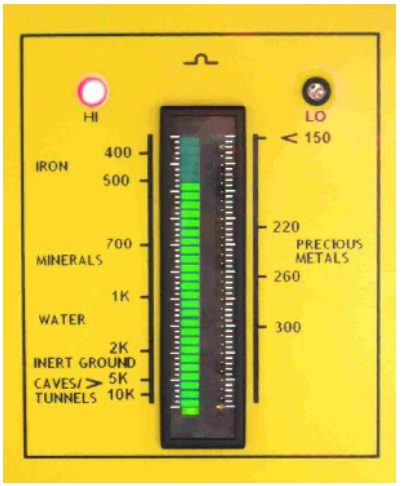
The ACCUMASTER-PRO DIGITAL has an LED bar to display the total underground electrical resistance, between 2 rods at a time, when their corresponding **TEST SWITCH** has been pressed for 2 seconds.

The bar has 2 scales, the low resistivity "**LO**" at right, and the high resistivity "**HI**" to the left. The corresponding scale to the current received reading appears by the **HI** or the **LO** LED that lights up. For example when there is a reading on the bar, and **LO** comes on, read the target electrical resistance value at the right. At the opposite, when **HI** LED is on, refer to the left scale to find the target type. If both **HI** and **LO** do not come on, the reading is very high resistance and refers to the left scale.
Compared to analog systems, the LED display on the ACCUMASTER-PRO DIGITAL offers automated operation and digital accuracy. It will provide many years of reliable use, and therefore does not suffer from static electricity, and failures from dust and dirt, that build up in the needle of the analog meters.

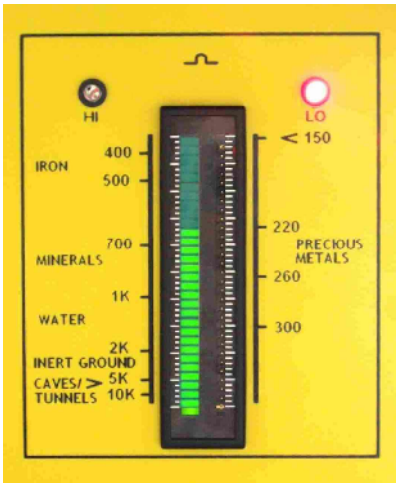
Typical examples of readings and their correspondence to the **LO** & **HI** scales.



High OHM readings
5K, no LED



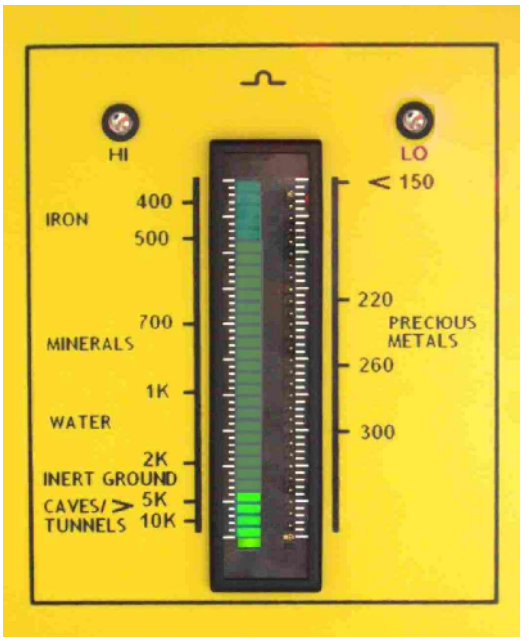
Typical iron indication
500 OHM, "HI" LED



Precious metal indication
220 OHM, "LO" LED

THE OHM READINGS

target type	meter readings*
Cave-tunnels	5K+
Inert ground	2K-5K
Water	900-2K
Minerals	650-900
Iron	400-650
Precious metals	100-400
Copper	400-320
Gold	320-250
Silver	250-170



*All readings are in OHM.
Please consider above readings can vary according to ground mineralization, faulting, conductivity, dampness, temperature and humidity.

TARGET SHAPE DETERMINATION

Object shape can be determined by rods position. Suggest that better readings occur by placing rod 1 & 2 in 80ft. apart. If by crossing rods 3 & 4 vertically to 1 & 2 line, at center, and best reading occur at distance of 6ft. Then we suggest target to be long and narrow.

DEPTH

Depth is determined by placing rods even closer to each other, as long as readings getting lower.
When reaching a point where by placing rods closer, readings no longer go low or they increase, move to previous point, where lowest OHM reading occurred. This is the best point to detect target depth.
Generally half the distance between rods is approximate target depth. See example D.
For example if by making a vertical measurement you found a lower reading in smaller rod distance, then maybe you are off target center or 2 targets exist.
It is worth to shift all 4 rods by 45 degrees having the same center and measure again.
Practice on known targets buried for some years will help before searching of unknown objects.

TARGET DUMMY LOADS

2 Dummy target samples (iron & gold) come with your locator. Basically for function checking.

Connect battery, Turn on "**MAIN SWITCH**" .Insert leads of the dummy **IRON** load into banana jacks #1 and #2, ensure a good contact is made.

Be sure "**BANK SWITCH**" is in the "**TOP**" position for TOP TESTS. Activate test switch on 1 and 2. Meter should point to around 500 on the Ohms scale, and lamp should light dimly. The same applies for **GOLD** dummy load, but needle should point at around 250 Ohms and lamp should light more brightly.

HOW TO IMPROVE DETECTION

Use rods that are made of sweet copper coated iron. Have to be polished regularly using steel wool, never to be oiled. Some large electronics retail stores offer rods 3/8" or 1/2" approximate 50" long. These are the best rods for the instrument's operation, as can be put deeper in the ground making stronger CW transmittance.

STORAGE

When not in use your locator should be stored in a dry warm environment. If it is not to be used for a any length of time it is advisable to remove the batteries to avoid leakage which could cause serious damage.
The working life of your locator will be shortened by careless use or neglect of the unit.
Think of your ACCUMASTER-PRO DIGITAL as a scientific instrument. Your locator is designed to withstand rugged handling on any terrain, but misuse or lack of due attention will tell in the end.
After using the ACCUMASTER-PRO DIGITAL in a hostile environment (salt water, sand, etc.) the exterior parts should be wiped clean with a damp cloth, paying particular attention to rods and meter, then carefully wipe dry.
DO NOT use solvents or detergents on any part of the detector specially the rods.

TROUBLESHOOTING

"Void" indications are received which are not true
Check the contacts of the wire spools, their clips and jacks. Loose connectors or cut cables result to void indications. Also there must be a solid contact between the rods and the ground itself. If rods are used on loose ground, sand and gravel, erratically void readings will occur.

While testing the ACCUMASTER-PRO DIGITAL operation with the dummy target loads for GOLD and IRON, Gold and Iron readings are not received on the meter. Is there a problem?
Yes, the ACCUMASTER-PRO DIGITAL is not working. Probably the **TARGET RESPONSE LAMP** has been burn out, or does not make a good contact. Unscrew the lamp cover, and use the supplied nylon sleeve to screw the lamp tightly. In case this does not solve the problem, remove the lamp and fit a new one. A few spare lamps are included with your ACCUMASTER-PRO DIGITAL purchase. Contact us or your dealer to supply you extra lamps.

The TARGET RESPONSE LAMP is burn out.
This lamp is a specific one and if swapped with another lamp in random the locator will operate erratically. A few spare lamps come with your purchase and only these can replace the burn out lamp. After unscrewing the lamp cover, use the supplied elastic sleeve to remove the faulty lamp and screw the new one. Ensure by all means that the **TARGET RESPONSE LAMP** does make a good electrical contact.

By installing the power supply cables from the 12V battery to the ACCUMASTER-PRO DIGITAL console, the "Power Ready" LED does not light up.
Check the battery status in case it is not fully charged, also the condition of the power supply cables. Change the 5 AMP fuse, with a new one, from those that come with your ACCUMASTER-PRO DIGITAL purchase. Contact us or your dealer to supply you extra fuses, these can also be obtained from your local electronics stores.

"Precious metals" indication is received to all 6 test switch positions, is this true?
A true target will indicate "precious metals" to one or two test switches when working with a larger distance square format, for example more than 10 meters X 10 meters. If the square is made smaller to better pinpoint the target, for example 5 meters X 5 meters, it might indicate "precious metals" to all 6 test switches. In any case to validate the reading, make at least another square to a nearby piece of ground and compare the readings, if these are not falling in the "precious metals" mark, then the target is likely to be true
In case the ground surface is wet after a rain, ACCUMASTER-PRO DIGITAL may read "precious metals" to all test switches. A way to overcome this is to scan again after a few days when the ground surface is dry.
Also heavily mineralized soils may indicate the same. The user can also fit larger rods to ignore the conductive soil layer, or dig a bigger hole and fit the rods inside, this way the "Carrier wave" will not make a contact with the surface moisture / minerals.

Before returning your locator for repair ensure you have done the following:
(a) Read the instructions thoroughly.
(b) Tried new batteries and checked procedure outlined above.
(c) Ensure there is a good connection between banana jacks, wire spools the rods and the soil, sometimes a bad connection or a cut wire results in faults.
(d) Return your locator with a letter giving full details of fault

EXAMPLES

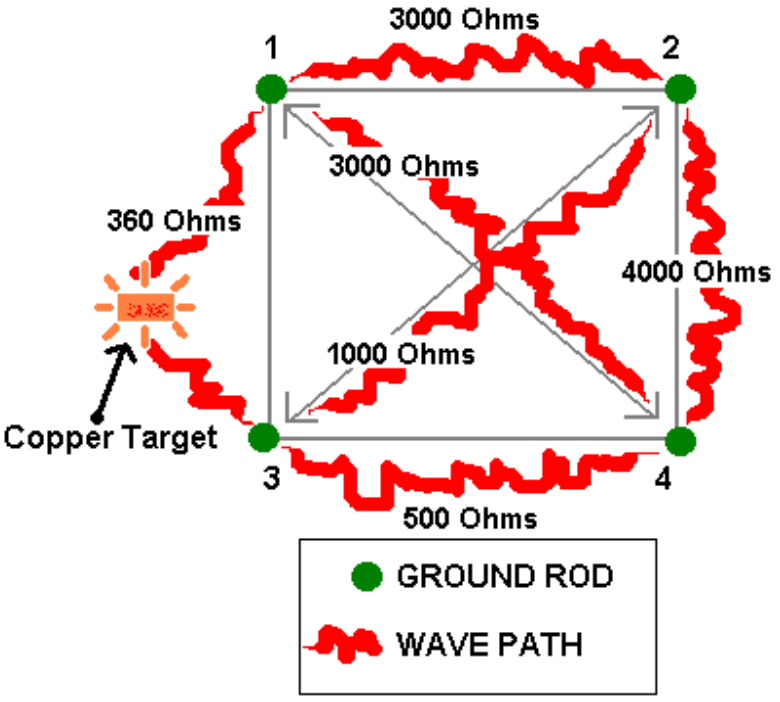
You can determine where the gold or precious metals are by reading the meter. When the (4) rods are laid out in the patterns below, the gold/silver will be a lower reading with the bar segments indicating at the **PRECIOUS METALS** section of meter. You can also find the depth of the target by using Example D as shown below.

How The ACCUMASTER-PRO DIGITAL Works! Different Rod Patterns Carrier Wave Path Examples

Copper Rods Are Numbered 1), 2), 3), 4) and are driven into the ground at the points indicated by the numbers. When the locator is operates, the carrier waves in the ground are read and sent to the meter for your analysis, stating whether there is gold or silver, iron, minerals, inert ground, water, or caves below the ground.

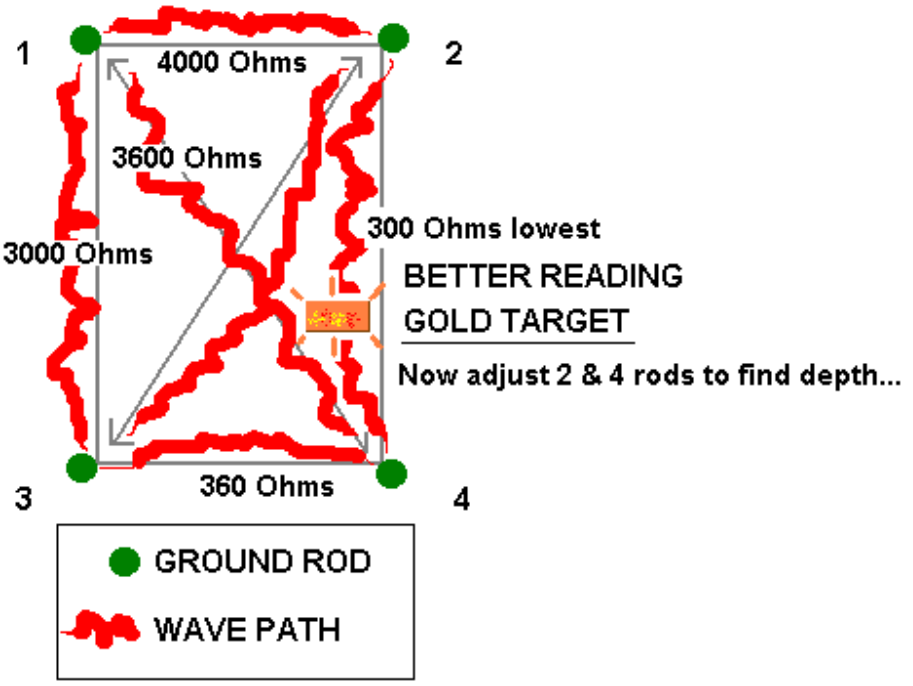
Example A

Lower Reading 360 Ohms Indicates Copper



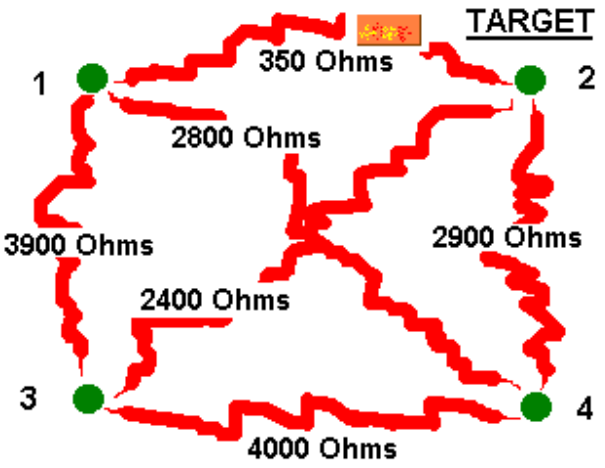
Example B

300 Ohms indicates gold target



Example C

Find the lowest reading and move rods toward the target until the treasure is located



LOWEST READING

Notice extreme low reading at only one branch. It possibly means a good target outside the format. Shift forward to that side.

When a target has been located in the center of the format. You'll have an "X" reading (lowest resistivity which is the most desirable).

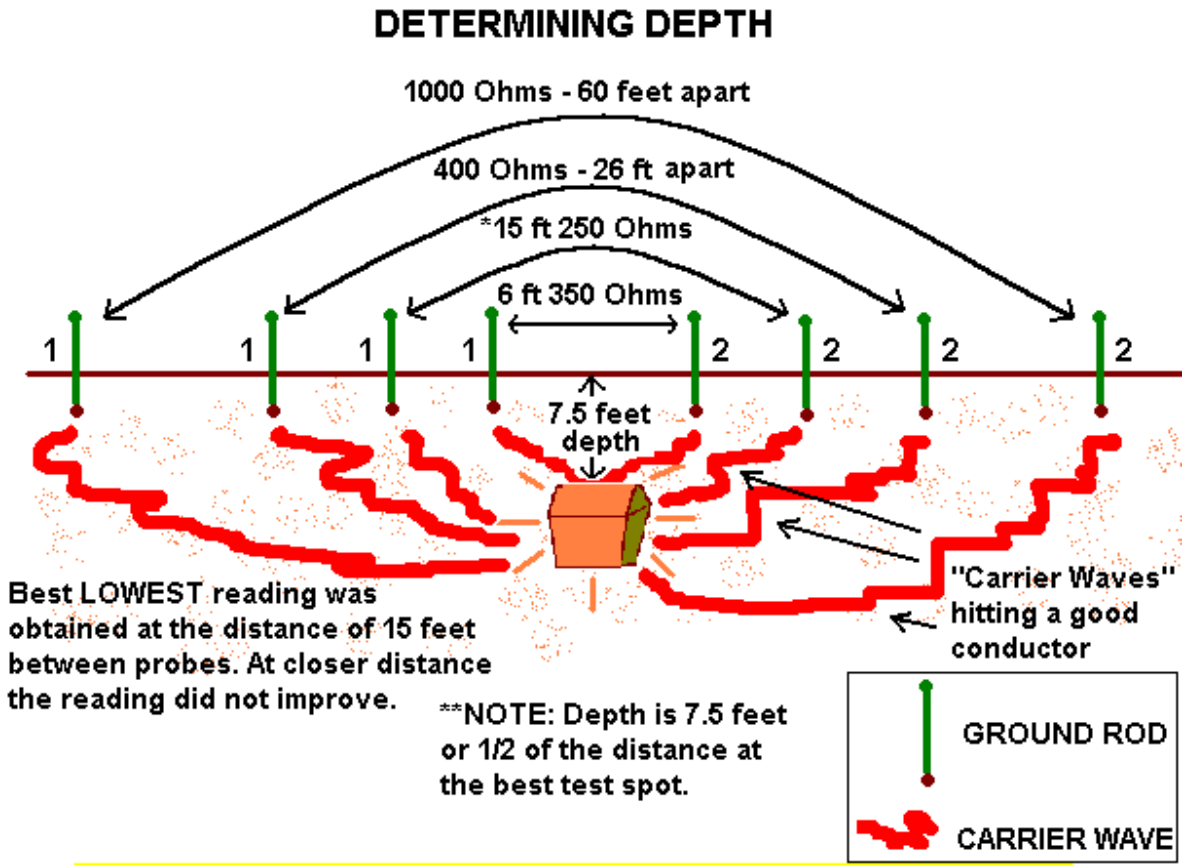
When a good conductive target is located near the bottom of format, 4 branches will show readings of + / - 300 or below.

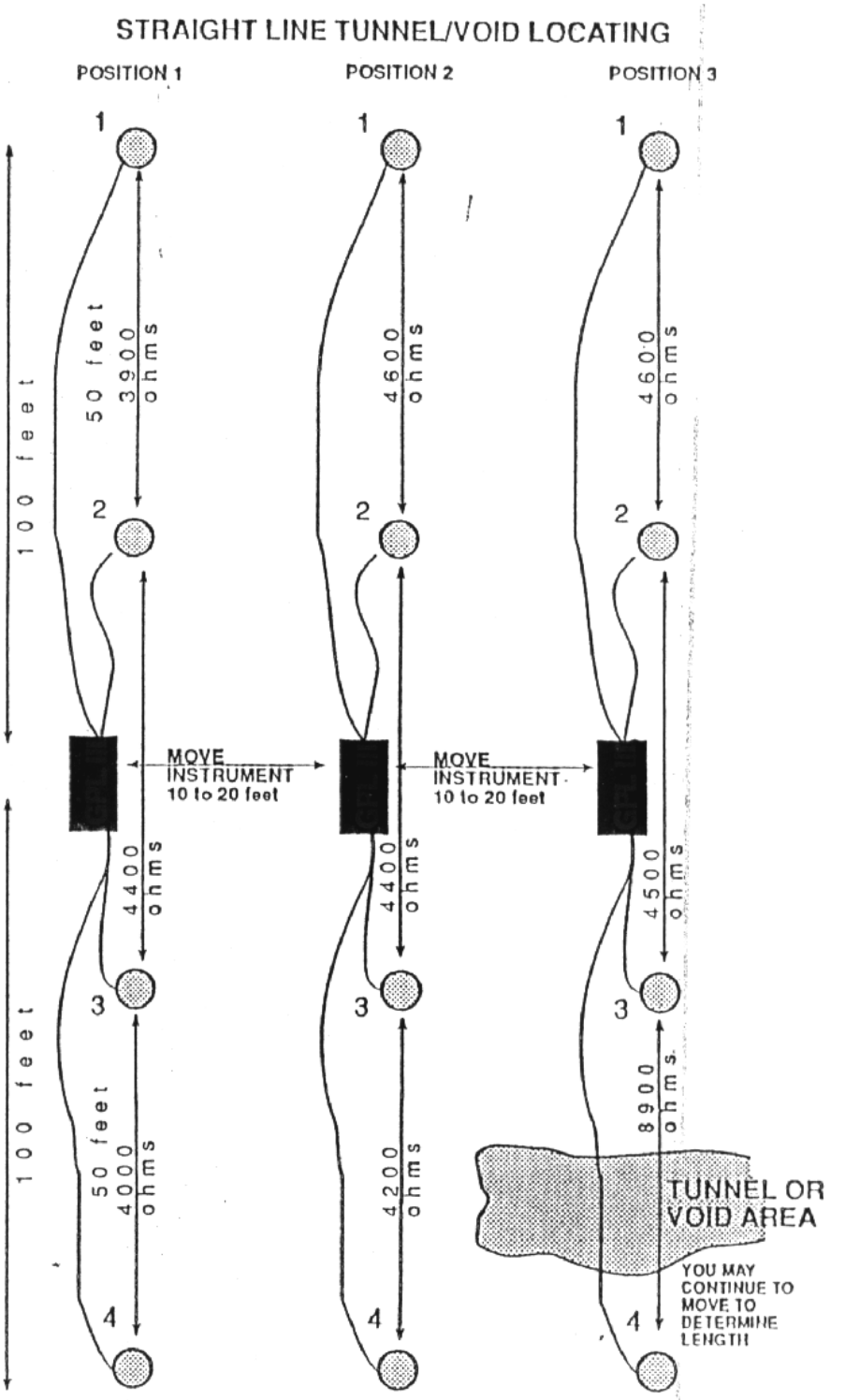
GROUND ROD

WAVE PATH

Example D

After the Gold/Treasure is found locate the depth by using this pattern





Notice that the sudden jump to a high reading in the third position indicating a very high resistance, a void of some sort. You may continue to move the rods to determine the shape and direction that the void is taking. Don't forget to write down the readings. Close up the rod distance to around 25 feet between rods and take further readings. This will enable you to "draw" a picture of what is undetground.