GEOHUNTER Instruction Manual

Introduction/Getting Started

This is **an exploration device that detects and visualizes changes in magnetic fields** .
Depending on the application, it can be used in **two different operating modes :**

- **Magnetometer mode**
  : Check the surrounding magnetic field changes in real time. The waveform display, numerical display, sound, and LEDs allow you to intuitively grasp the strength of the magnetic field.
- **Ground Scanner Mode This scan mode**
  divides
  the ground or target area into **a grid and** measures the distribution of the magnetic field.
  It has two modes: "Single Shot" and "Auto Grid."

About the power switch

is powered by
a rotary power switch built into the unit , which has the following **three positions :**

display	Content
0	Power OFF
1	Power on
2	Battery charging position

How to turn on the power

1. Turn the power switch to the **"1 (ON)" position**
2. The screen will pop up and the menu screen will appear.

Precautions when charging

- When charging, be sure to set **the switch to the "B" position.**
- Charging is done via the designated charging terminal.

Basic screen after startup

When you turn on the power, the screen will start up and the following **two mode selection screens** will be displayed.

- **scanner**
- **magnetometer**

From this screen, select the mode you want to use and begin operation.

Basic concepts for operation

- This device detects **changes in magnetic fields .**
- If there is metal nearby,
    - Number
    - waveform
    - sound
    - The LED display
      will change

Stable measurements are possible with the initial settings , without any special settings .

About the settings (overview)

This unit has settings for sensitivity and various parameters.

- Sensitivity value: **Default value 3**
- Alpha value: **Default value 50**

is **the most balanced recommended setting** .

If the sensitivity is set too high, accurate results may not be obtained.

Generally, we recommend using the default setting.

Important points to note when using the device

- Once you start the measurement, be sure to complete **it to the end.**
- Interrupting midway through can be error prone
- Even if a numerical value is displayed,
  be sure to confirm
  the value by sliding the slider (it may not be confirmed just because it is displayed).

About this manual

In this instruction manual,

- Magnetometer mode operation
- How to use Ground Scanner Mode (Single Shot/Auto Grid)
- Meaning of each setting item and points to note
- Extended operation via Wi-Fi connection

I will explain this step by step.

Next steps

Which of the following will you make next?

1. **"Magnetic field mode" detailed operation explanation page**
2. **"Grand Scanner (Autogrid)" Instruction Manual**
3. **"Single Shot" Operation Instructions**

4. **Precautions and trouble prevention**
5. **Complete instruction manual (chapter-based)**

If you specify a number,

we will create a continuation that **can be printed or converted to PDF as is .**

Please try re-creating the video by adding your own interpretation or speculation.

Understood.

So, this time I will rewrite the **"Introduction"** of the instruction manual **to include the intentions and design concepts that can be read from the video itself (operation flow, reactions, speaking style, and demonstration style)** ,

making it **more "content that will deepen understanding of the actual machine."**

※The following

- Speaker's emphasis
- How to demonstrate
- How to include a warning
- We have added

  interpretations that can be reasonably read from the UI configuration, LEDs, and sound usage

  (we have not included any unfounded performance speculations).

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refer to the instruction manual for additional detailed explanations.

Introduction - Concept and basic structure of this machine

About this unit

This is **an exploration device that can simultaneously grasp changes in the magnetic field using multiple methods: sound, light, numbers, and waveforms** .

As you can see from the video, this is not a machine that only looks at numbers.

- Feel it with your ears
- See with your eyes
- Make intuitive decisions

It is designed with an emphasis on **ease of use for field exploration .**

For this reason, operation has been kept as simple as possible, and

it is assumed that **the initial settings will be sufficient for use .**

Power supply and charging design concept

The power switch is **a rotary type** with three positions.

- Preventing erroneous operation
- Clear separation between charging and operating states

This intention can be read.

position	role	interpretation
0	Power OFF	complete stop
1	Power on	Normal use
B	charging	Safe charging separated from the operating circuit

, the repeated instruction to

" **always set to B when charging " makes it clear that the design philosophy is to avoid charging while the device is in operation** .

Intention of mode configuration after startup

After powering on, the first thing that is displayed is

- **magnetometer**
- **scanner**

There are only two choices.

this is,

- First, understand the magnetic field itself
- Next, "perceive it as a surface"

This shows that the **configuration is designed for gradual use .**

Positioning of magnetometer mode (introductory interpretation)

Magnetometer mode is more than just a test function.

- Checking the magnetic status at the site
- Sensory understanding of metal reactions
- Pre-exploration environmental check

It is positioned as **a basic mode** for the purpose of

Display and response relationship

The reaction relationships that can be seen from the video are as follows:

- **Waveform**

  → Visually grasp the progression of magnetic field changes
- **Numerical value**

  → Estimated magnetic field strength
- **LED color**
  - Blue: Normal state
  - Green: Magnetic field change detected
  - Red: Strong change (clear response)
- **Sound**

→ Helps you understand changes even when you can't see

They all represent

the same magnetic field changes in different ways , so there is no need to rely on any one of them.

The design intent behind the sound ON/OFF

In the video,

- Considerations when sound continues to play
- Situations you don't want others to know about
- The screen is difficult to see in bright places

The following **practical usage scenarios** are specifically discussed.

From here, the machine

"A tool that can be used by switching between different senses depending on the situation"

It is clear that it is designed as a

The waveforms and numbers will continue to function normally even if the sound is muted , so

the sound only plays an auxiliary role.

Why we place importance on stopping operations (important)

that the video emphasizes that **you must press the stop button .**

In the stopped state,

- The waveform becomes a straight line
- The status is clearly displayed as "Stopped"

For this reason,

the unit **clearly separates and manages the operating and stopped states** .

This design is directly related to **the stable operation of the grid scan described below.**

Grand Scanner Mode Concept

The ground scanner is

- Understanding magnetic fields as a "surface" rather than a "point"
- Synchronizing human movement with device operation

This is the mode for

The meaning of the two measurement methods

mode	**intention**
Single Shot	For careful manual measurement and checking

mode	intention
AutoGrid	Efficiency measurement at a constant rhythm

Especially on AutoGrid,

- Sounds per second
- On-screen position indication

This allows **the timing of measurements to be synchronized with people's movements** .

Reasons for "always performing slide operations" (inferences from the video)

Many times in the video,

"Even if you see a number, make sure you move the slide."

It is emphasized that:

this is,

- Displayed value ≠ Confirmed value
- Internal processing is triggered by "operation completion"

This shows that the UI design is as follows.

It is thought that this is **designed to prevent situations where you think you have touched something but have not .**

Why does the count start from 0?

The reason why the point of "starting from zero" is emphasized is that

- Internal Array Processing
- Grid Data Integrity

This is to maintain this.

If it shifts along the way,

- Data Corruption
- An error occurred

This is why the design

requires **humans to adapt to the machine's logic .**

Introductory Summary

- This is a probe that emphasizes **both intuition and logic.**
- The default settings are sufficient for use.
- The most important thing about operation is to "not stop the flow"
- Interruptions and unconfirmed operations may cause errors.

Instruction Manual (Supplement) Wi-Fi Connection/PC Display (TCP Communication)

*This chapter does not cover "operating the device alone," but rather **how to send data to PC software and display it** .

1. What to do in this chapter (conclusion)

A Wi-Fi connection simply creates a wireless path, and data exchange only begins **once a TCP connection is established .**

1. your PC to **Wi-Fi “GEOHUNTER”**
2. Check that **the TCP connection is OK** on the PC software.
3. Then run **the scanner (Auto/Single) and MAG Live.**

This is the order.

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2. Very important: Connection order (if you get it wrong it won't connect)

Correct order (required)

1. **Turn on the power of the main unit (GEOHUNTER)** (the main unit is the "server side")
2. After starting the device , **wait for a while** (I emphasize that you must do this first)
3. **Connect your PC to Wi-Fi “GEOHUNTER”**
4. **Click the Start button on the PC software → Check that the TCP connection is OK/Connected**
5. Then start scanning (red start button, etc.)

Important: It is not possible to operate only the PC side. **The device itself must be powered on and in standby mode** .

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3. Windows 11: How to connect to Wi-Fi "GEOHUNTER"

The operations explained in the video will be made into steps so that you won't get confused.

1. Windows **settings**
2. **Network and Internet**
3. Check if **Wi-Fi is ON**
4. **View available networks**
5. Select **"GEOHUNTER"** at the top of the list
6. Press
   Connect (Automatically connect: ON is recommended. OFF is also acceptable depending on the situation, as explained)

Important Understanding

- "No Internet access" is also normal (just connected to the device's AP).
- **Connecting to Wi-Fi** does not mean that data is coming. The next TCP is the real thing.

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4. Check the TCP connection (this is the "pass/fail" decision)

Signs of successful TCP (both required)

After pressing **the start button** on the PC software once,

- **"TCP connection OK" will be displayed** on the edge of the screen , and the IP/port (e.g., 192.168.4.1:5000) will be displayed.
- also say **"Connected"**

Once these two are out, data can begin to flow.

They state with certainty that **if Connected is not displayed, data cannot be exchanged .**

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5. Basic operation flow of PC software (scanner)

5-1. New creation (basic every time)

- **File** → **New** → (Confirm with "Yes")
- Start with a clean slate (and be reminded to remember this)

5-2. Start (establish TCP)

- **Start** with a blank slate button
- Check that "TCP connection OK" and "Connected" are displayed

5-3. Start the scanner

- **Scanner** → Select Auto Grid or Single Shot
- Area setting (e.g. 12x15)
- **OK** to change the grid display (starting at 0).
- Press the red button (start) on the device to start measurement → data begins to flow to the PC

5-4. Absolute rule: "See it through to the end"

- Whether Auto or Single, **interruption during the process can cause errors.**
- "Make sure you do it to the end"

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6. Explanation of the "Uneasy Colors" Problem (Relative Display Behavior)

The video carefully follows up on the point that color can appear even in places where there is nothing, which can be worrying.

Relative display (behavior)

- **the difference between high and low** data at that time , color may appear even when there is nothing
- If a "strong signal" comes in along the way, **the standard jumps and the others return to green.**
    - The moment a strong value appears, the surrounding colors change dramatically (relative "renormalization").

How do you judge?

- First, finish **the race to the end**
- If you find any areas of concern in the relative scan , we recommend **rescanning the area .**

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7. Handling the "delayed flight/few squares jump" phenomenon (wireless delay)

During Auto Grid, the display may appear to jump 2-3 spaces instead of 1 space at a time.

- **All data is read**
- **It's just slow due to wireless issues**

to

rush and interrupt at this point.

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8. How to view after scanning (3D/scale switching)

- Once the scan is complete, **a 3D view** will appear .
- Change the appearance by switching between "full scale" and "relative/absolute"

Typical when there is nothing

- When displayed in absolute terms, it becomes mostly blue (= small change), which contributes to the judgement that there is "almost nothing."
- If you are concerned about the relative display, rescan to check.

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9. Termination process: Stop → Check for disconnection → Next

Always stop

- **Be sure to stop when you're done** (emphasis added)

"Not connected" is the stable state

Before the next measurement, the display on the screen

- It explains that it is safe to check that it is **not connected (TCP not connected) .**

If you want to save

- **File → Save** (we will demonstrate an example without saving this time)

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10. How to Tell if a Connection is Dead (Very Practical)

The video shows a very important method of judgment.

Judgment method

- After creating a new connection, **when you press the Start button, the screen will "return to normal (automatic return behavior)"**

  → If this happens, it means that TCP is working properly.

When it's no good

- Nothing changes when pressed/Connected doesn't appear

→ **TCP is wrong** = data not transmitted

→ **"Start over from step 1"** (Turn on the device → Wait → Connect to PC Wi-Fi → Start → Check Connected)

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11. About MAG Live Scan (separate software)

- MAG Live Scan starts as **a separate software**
- Similarly, this **will not work if the connection status is not connected.**
- If you can't connect, try the following on the Windows side:
    - GEOHUNTER Wi-Fi → **Reconnect**
    - If that doesn't work, we'll demonstrate the reconnection procedure of turning **Wi-Fi OFF and then ON .**

*The video ends midway through explaining how to "start over again."
For this reason, the "confirmed successful steps" on the MAG Live side are written based on the common principle above (Wi-Fi → TCP → Connected).

Appendix: User Checklist (1-page version)

The shortest path to success

- Turn on the device → wait a while
- Connect your PC to Wi-Fi "GEOHUNTER"
- PC software: File → New
- Start button → **TCP connection OK** + **Connected**
- Scanner (Auto/Single) settings → OK
- Start by pressing the red button on the device → Complete the game
- After finishing: Stop → Check if it is not connected

When you can't connect

- Connected doesn't appear → First, reconnect to Wi-Fi (disconnect → connect)
- Still no luck → Wi-Fi OFF→ON → Reconnect GEOHUNTER
- If that doesn't work, try again from step 1 on the power supply.

If you are unsure about the previous section, please refer to the following revisions:

PC connection (Wi-Fi/TCP), MAG Live Scan, and troubleshooting

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1. Purpose of this chapter

This chapter explains how to connect the device (GEOHUNTER) to a PC and use the PC app to do the following:

- Ground scan display (2D/3D)
- MAG Live Scan (Live waveform display of magnetometer)

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2. The big picture of connectivity (most important)

PC connection is "two-stage".

(1) Wi-Fi connection (joining the network)

Connect your PC to the device's Wi-Fi (SSID: GEOHUNTER) and enter the same network.

*At this point, you have only created a communication path and no data will be transmitted.

(2) TCP connection (start of data communication)

The PC application connects to the device via TCP and is ready to send and receive data.

Data can only flow once the TCP connection is established.

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3. The correct order with the highest success rate

The order of the steps is important.

1. **Turn on the device first**
2. **Wait 30 seconds to 1 minute (recommended)**
3. Connect your PC to Wi-Fi "GEOHUNTER"
4. Click **Start** on the PC app and check **the TCP connection status (Connected)**
5. Start the scanner or MAG Live

Supplementary information (speculation)

Immediately after startup, the device's Wi-Fi environment (AP) and TCP server function may not be stable, so waiting a short while will help stabilize the connection.

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4. Blocking by Windows Security (Firewall) and Countermeasures

Your PC's firewall (such as Windows Defender Firewall) may block TCP communication even though you are connected to Wi-Fi.

4-1. Typical symptoms

- I'm connected to the Wi-Fi "GEOHUNTER", but the app **isn't connected.**
- TCP connection OK message is not displayed or no data is received
- It connects only immediately after startup, but then the data stops

4-2. How to deal with the problem

- The OS may block communication after the first boot or update.
- In many cases, the problem can be solved by "allowing" communication from the PC app.

4-3. Practical solutions (Windows)

- If a security warning appears when you start the app
    - Allowed on **private networks (recommended)**
- If you close the warning

- "Windows Security" -> "Firewall and network protection" -> "Allow an app through firewall" and allow the app.

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5. MAG Live Scan (live waveform) operation procedure

5-1. Start-up ~ Start receiving

1. Launch MAG Live Scan
2. Select **MAG** in the mode selection
3. Press **Start**
4. If the waveform moves, reception is successful

5-2. "Successful sign" of successful reception

- Status is **Connected**
- The IP address and port (e.g., 192.168.xx or 5000) will be displayed.
- The value is updated continuously

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6. Regarding specifications for no sound

It is recommended to operate MAG Live Scan without sound
because the increased load caused by sound processing can clog wireless communication processing and cause unstable data reception (this is a rational explanation, including speculation).

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7. How to use the Smooth function

has a **Smooth function** that smooths the waveform .

7-1. Smooth = 0

- Display raw data as is
- The waveform tends to become jagged
- Minor changes can be seen, but visibility is reduced

7-2. Increase Smooth

- The waveform is smoother, making it easier to read trends.
- However, instantaneous changes are rounded.

7-3. Recommended guidelines

- Initially, **2** is recommended
- Noisy → 3
- Want to see the real reaction → 0-1

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8. How to visually check reception status using Start/Stop

The reception status can be immediately confirmed by looking at the waveform.

- **Stop** : Waveform is a straight horizontal line (updates stop)

- **Start** : The waveform starts moving again (reception resumes)

Therefore, if the object remains in a straight horizontal line and does not move, it is likely that **no data has been received .**

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9. Measurement posture and operation tips

9-1. Sensor height

about 15 to 30 cm above the ground is recommended.

(Note: Since it is susceptible to noise near the ground and surrounding metal, it may be more stable if it is placed a little higher.)

9-2. Vertical hold

It is recommended to hold

the sensor **vertically .** Please pay attention to the installation environment as the sensor is more likely to react if there are metal objects nearby (heating appliances, desk legs, steel frames, etc.).

9-3. Difference method (estimate supplement)

When using the difference between multiple sensors, such as the tip and base, posture and height tend to affect the results. Be mindful of a reproducible posture.

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10. Settings (Preferences)

MAG Live Scan has preferences, which include:

- IP address/port (usually no need to change)
- Display language (Japanese/English, etc.)
- Other display settings

It is recommended that you do not change the IP address or port during normal operation.

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11. Terminal, charging and connector handling (safety)

11-1. Charging

Please use **the included charger and accessories** for charging .

11-2. Rewrite port

The terminal for rewriting the internal program is not normally used. Please operate with the cover closed.

11-3. Inserting and removing connectors (required)

- is **off** before plugging or unplugging
- Remove the cable while pressing the lock button
- When inserting, align the notch (key) **and** insert until it clicks into place.
- Not waterproof (be careful not to get it wet in the rain or water)

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12. Common problems and recovery procedures (shortest)

12-1. Wi-Fi is connected but no data is coming in

1. Turn on the device → wait 30 seconds to 1 minute
2. Disconnect and reconnect your PC Wi-Fi
3. Start the app → Check Connected
4. If not, **allow Firewall**
5. If that doesn't work, start over from the beginning

12-2. Slow/Errors when browsing files while connected

- When opening or viewing a file, stop receiving it first.
    1. Stop
    2. To unconnected state
    3. Then file operations

(Additional speculation: If the receiving process and file processing conflict, the operation may become slow.)

12-3. TCP not connected/connection failure

1. Stop
2. Reset the status by creating a new file
3. start again
4. If that doesn't work, try connecting to Wi-Fi again (including turning on the device).

One-page on-site summary

- Turn on the device → wait 30 to 60 seconds
- PC Wi-Fi = GEOHUNTER
- Start the app → Check Connected
- Measurement (MAG: Smooth=2 recommended)
- Stop after finishing (disconnect if viewing files)

GEOHUNTER Instruction Manual (PC App Operation)

Purpose: View saved data, view display, change settings, check updates

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1. PC startup and app location

1-1. Turn on your PC

- the power button on the PC (the button on the corner of the case) **for 1-2 seconds.**
- When the power light comes on, start
- **Immediately after launching, wait a little while without performing any operations** (wait until the sign-in screen and desktop are displayed)

1-2. How to start the app

- **The treasure chest icon** on your desktop is the GEOHUNTER app
- If pinned to the taskbar, it can be launched from the taskbar icon

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2. Initial screen concept (screen layout)

After launching the app, it can be broadly divided into the following uses:

- **File** : "New / Open / Save" of saved data
- **2D map display** : Color-coded strength for each square (quickly grasp overall trends)
- **3D preview display** : Check the prominence (strength) in 3D
- **Various buttons** : Display method switching, relative/absolute, full scale, cursor, etc.
- **Settings/Help** : Language, update speed, display quality, update check, etc.

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3. How to open saved data (most important: the most used in the field)

procedure

1. **Click [File]** in the top menu
2. **[open]**
3. Select the data you want to view from the list
4. When you open it, the data will be displayed on the screen.

Place to see immediately after opening

- **2D map** : First, grasp where the responses are concentrated.
- **3D preview** : You can see whether the reaction is a "sharp peak" or a "broad mountain"

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4. 3D preview operation (viewpoint switching/rotation)

4-1. Viewpoint button (one-touch switching)

The viewpoint of the 3D preview can be fixed using the button.

- **Top**
- **Front**

- **Left**
- **Right**
- **Isometric**

The moment you press it, the frame (selection state) will change and the viewpoint will change.

4-2. Rotation without a mouse (touchpad operation)

- Press (click) the touchpad area on the right
  and move your finger around to rotate
  the 3D. (The operation feel varies depending on the model, so a good tip to find the area you can rotate is to press on the right side.)

4-3. Opening and closing the 3D window (display ON/OFF)

"Open/Close 3D Window" is a toggle.

- If it feels heavy, **close the 3D and center** on the 2D to make it lighter.

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5. Differences between display modes (Fast / Normal / Smooth)

The 3D display has switchable display characteristics. Select the one that best suits your purpose.

5-1. Fast

- A tendency to exaggerate differences in reactions
- Advantageous **when detecting weak reactions or subtle differences**
- Display is fast, but the appearance may be emphasized

5-2. Normal

- Standard display
- The excitement can sometimes seem more subdued than in Fast.
- If you're unsure, try this

5-3. Smooth

- The shape looks smooth
- Suitable for seeing the overall trend and shape of the mountain
- However, the peak may be rounded and a sharp response may appear weak.

Guidelines for use

- Pick up "yes/no" → **Fast**
- Overall understanding → **Normal**
- View shape → **Smooth**

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6. Cursor function (view position value and estimated depth)

6-1. Display the cursor

- When you select "Strata" and move around on the map, **a cross cursor** will appear and **information about that square** (such as estimated depth) will be displayed.

6-2. Important: Estimated depth varies greatly depending on the geological layer

Even with the same reaction, the estimated depth display will change if the geological layer is changed.
This is because it is a function that changes the "assumed ground conditions," so the depth is treated as a "guideline."

Recommended on-site operation

- First, select a geological layer close to the site, such as sand, clay, loam, or bedrock.
- the depth indication as **a guide for comparison** and do not rely on it too much.
- Emphasis on "positional reproducibility (the same spot is strong no matter how many times you look at it)" rather than depth

6-3. Cursor movement buttons (XY / X± / Y± / center)

- The cursor can be moved one square at a time in the X and Y directions.
- Click the "Center" button to move it roughly to the center
  (it is a feature that the center will shift if the grid is odd numbered).

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7. Full-scale display (function to improve appearance)

7-1. What is full scale?

- to adjust color scale and switch to **a display that makes gradation easier to see**
- You can switch between 2D map display and full-scale display with the touch of a button.

7-2. Points to note

- Full-scale maps prioritize visibility, so
  in some situations a 2D map may be more intuitive.

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8. Relative Values / Absolute Values (This is the most important part)

8-1. Relative

- Color the data using the difference between **the minimum and maximum values**
- Even if the whole image is blue, the color emerges by picking up the "tiny differences within it."
- **Good at detecting weak changes and subtle reactions**

8-2. Absolute value

- Color-coded based on a fixed scale, such as 0 to 4095
- Data with low values tends to be blue overall
- **Strong in confirming the "authenticity" of strong reactions** (checking whether the value is absolutely high)

8-3. Recommended on-site procedures

1. Finding "suspicious places" using **relative values**
2. Check whether the value is high using **absolute values**
3. Rescan suspicious locations to check reproducibility

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9. Settings (basic settings and language settings)

9-1. Language settings

- Japanese / English / Tagalog / Chinese available
- Some of the content may not be translated (specifications).

9-2. Basic Settings (Important: What you can touch/what you can't touch)

Do not touch (fixed as a rule)

- **Device IP address**
- **Device port number**

  *If you change this, the settings on the device itself must match, which is not required for normal operation.

You can touch it (according to the operation)

- **Drawing update interval (ms)**
  - 1000ms: Every second (standard)
  - 500ms: Every 0.5 seconds (to increase the tempo)

    *Setting it too fast may increase the load on your PC
- **Full Scale Magnification**
  - Smaller values make the image look rougher.
  - Increasing the value makes it look smoother and cleaner
  - Returning it to the standard value (e.g. 30) will make the appearance more stable.

May be heavy to the touch

- 3D quality, 3D preview update, etc.

  *If you increase it too much, the drawing may become heavy.

9-3. Startup behavior (ON/OFF as desired)

- Check for updates at startup
- turn on the 3D map automatically after scanning,

  but only if you need it.

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10. Help (version information/update confirmation)

10-1. What you can do

- Displaying **version information**
- **Check for updates**
- If there is an update, follow the instructions to download it and reinstall it.

10-2. Caution

Update confirmation is affected by the internet connection status.

(If the on-site PC is connected to GEOHUNTER Wi-Fi, it is often configured not to be able to access the internet, so it is safer to perform updates in advance.)

11. Summary of common “points of confusion” (abbreviated)

- **3D is heavy** → Close the 3D window and focus on 2D
- **Finding subtle differences** → Relative value + Fast
- **Check if the strong reaction is genuine** → Absolute value + 3D perspective
- **Depth is a guideline** → It varies greatly depending on the geological layer, so reproducibility is important
- **The settings you can change are** → Update interval and full scale magnification
- **IP/Port is basically fixed**

Additional explanation: Understanding the screen button layout and text

GEOHUNTER PC app (main screen)

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0) Full-screen "map"

- **Top** : Menu bar (a row of text menus)
- **Below that** : Operation button row (start/stop etc. are lined up horizontally)
- **Center left** : 2D map (color grid)
- **Center right** : 3D preview (3D projection)
- **Right side or top** : Small buttons for switching 3D viewpoints (top/front/left/right/diagonal, etc.)
- **Somewhere on the screen** : Mode switching (Fast/Normal/Smooth), relative/absolute, full scale, etc.

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1) Top: Menu bar (text menu)

A text menu appears in a horizontal strip at the top of the screen .

- **Roughly from left to** right:
  - **file**
  - **display**
  - **setting**
  - **help**

Frequently used locations (in the menu)

- **File → New/Open/Save**
- **Settings → Basic Settings / Language Settings**
- **Help → About / Check for Updates**

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2) Directly below the menu bar: Main operation button row (a horizontal row of “major functions”)

Just below the menu bar, there is

a horizontal row of buttons . This is the "control center for measurement and display switching."

The image flows from left to right, typically:

2-1. Left side: Communication and measurement operation zone

- **Start**
- **Stop**
- **MAG Live Scan** (launches live magnetometer display)

*It is easier to find "Start/Stop" if you assume that they are grouped towards the left.

2-2. Center: Display switching zone

- Full **Scale**
- **2D map switching** (full scale and back)
- Relative / **Absolute**

2-3. Right: Analysis and cursor operation zone

- **Stratum** (sand/clay/loam/bedrock/unknown, etc.)
- **Cursor** (cross cursor display ON/OFF)
- **XY movement** (X+/X-, Y+/Y-)
- **Center** (move cursor to center)

Tips for searching: Where

"stratum", "cursor", "X±" and "Y±" are grouped together = cursor-related zone

---

3) Center left of the screen: 2D map area (colored grid)

The **colored grid** in the middle to left side of the screen is the 2D map.

- When you click (or tap), the cursor appears/changes position.
- This is where **the effect of switching between relative and absolute is most obvious.**
- A place to see at a glance which squares are strong

---

4) Center right of the screen: 3D preview area (3D mountain)

The three-dimensional display in the middle to right side of the screen is the 3D preview.

- If you have a mouse: Drag to rotate, wheel to zoom in and out (may vary by device).
- If you don't have a mouse: **Press the right side of the touchpad and rotate your finger** to make it easier to rotate.

---

5) 3D viewpoint switching buttons (small buttons clustered together)

Near the 3D preview (usually on the right/top) there is **a small cluster of viewpoint buttons .**

Main button:

- **Top**
- **Front**
- **Left**
- **Right**
- **Iso/Isometric**
- **3D Window Open/Close** (display toggle)

Tips on how to find it:

Find the "mini control panel" with "top," "front," "left," "right," and "diagonal" lines up.

---

6) Fast / Normal / Smooth switching (switching display quality and appearance)

Somewhere on the screen (top right or around the 3D preview)

you will see **three options: Fast, Normal, and Smooth .**

- **Fast** : Looks stronger and makes a difference
- **Normal** : Standard
- **Smooth** : smooth (looks round)

Tips for finding it:

“Fast / Normal / Smooth” will appear as **three options in the same row** .

---

7) Shortest route when "Open File" (location-based)

- **Near** the top left corner of the screen → **File**
- **Open** the
- Select in the dialog and click OK

---

8) Template for "guessing the location" when you get lost

- "Save/Open" → **Top row (File)**
- "Language/Basic Settings" → **Top row (Settings)**
- "Relative/Absolute, Full Scale" → **Horizontal button row just below the menu bar**
- "Viewpoint (top/front/diagonal)" → **Small buttons near the 3D preview**
- "Strata/Cursor/XY Movement" → **Right side of the horizontal button row**

Next improvement idea (how to make it more "diagram-like")

This prototype was written using only "positional words," but if you want to make it more reliable,

- "Text ASCII Diagram" version with buttons arranged **left to right**
- You can create a "text layout diagram" version that shows 2D/3D areas with frames .

To create one, follow these steps (no questions needed, you can create one with a temporary standard layout):

- **[Top row: File/View/Settings/Help]**
- **[Below: Start/Stop/Mag/Full Scale/Relative/Absolute/Strata/Cursor/XY…]**
- **[Left: 2D] [Right: 3D]**

GEOHUNTER Instruction Manual Charging Section - About the 3-Color LED

Charging method, safety precautions, and supplementary information

---

1. Charging method (basic operation)

1-1. Connecting to the charging terminal

- Insert the included charging cable into **the charging port** on the device .
- **The charging indicator LED** will turn red while charging

1-2. Check if charging is complete

- **The LED** will turn green when charging is complete
- Charging time is **approximately 2 to 3 hours**

---

2. Temperature and location during charging (important)

2-1. Fever

- Under normal circumstances, the **battery will not generate much heat while charging.**
- However, the device may become hot in **places with high ambient temperatures.**

2-2. Precautions in high temperature environments

- When charging in a hot area or a high temperature location, be sure to observe the following:
    - A place not exposed to direct sunlight
    - A well-ventilated, **cool place**

2-3. Safety precautions when charging for the first time

- If you are charging for the first time or are unsure,
  charge **near a non-flammable surface such as a concrete floor.**
- Avoid charging near flammable materials (paper, cloth, wood)

*This unit uses a lithium-ion battery.
Although this is generally a safe configuration, we recommend charging it in a safe environment just to be safe.

---

3. LED display during charging and use (can be seen even without sound)

3-1. LED colors and their meanings (during measurement)

The unit has **an LED indicator that shows the status.**

- **blue**
    - Normal state
    - A state where there are no large changes in the surrounding magnetic field
- **green**

    - Detects some kind of magnetic field change
    - Weak to moderate reaction
- **red**
    - Detects strong magnetic field changes
    - Possible presence of metal or large magnetic changes nearby

3-2. Why it can be used without making any sound

- Even with the sound turned off , you
  can **judge the strength of the signal by observing the change in color of the LED.**
- In noisy surroundings or environments where you do not want to make noise,
  you can **operate it using only the LED display.**

---

4. Sound notifications (supplement)

- The sound changes depending on the strength of the magnetic field change.
- Please use sound/no sound depending on the situation.

Guidelines for use

- Outdoors during the day, the screen is hard to see → **Sound**
- Want to be considerate of others / Nighttime → **No sound + LED check**

---

5. Summary (Charging and Supplementary Points)

charging

- Red LED: Charging
- Green LED: Charging complete
- Charging time: Approximately 2-3 hours

safety

- Charge in a cool place in a hot environment
- We recommend charging in a non-flammable place for the first time.

supplement

- Even when the sound is turned off, you can check the status with the LED
- The color of the LED lets you intuitively understand the strength of the signal.

GEOHUNTER Instruction Manual Troubleshooting

Troubleshooting chart (for on-site use, 1 sheet)

---

1. Wi-Fi is connected but no data is coming in

Symptoms

- Already connected to Wi-Fi "GEOHUNTER"
- The waveform does not move
- Connected is not displayed

cause

- TCP connection not established
- Communication is blocked by the PC's firewall
- Insufficient waiting time for the device to start up

handle

1. Check that the device is turned on
2. **Wait 30 to 60 seconds** after turning on the power
3. **Start** with the PC app → Check that the Connected message is displayed
4. If it doesn't appear, **allow the app in Firewall**
5. **disconnect and reconnect** the Wi-Fi

---

2. Connected message does not appear / TCP not connected / connection failed message is displayed

Symptoms

- TCP not connected/connection failed
- IP address and port are not displayed

cause

- Wi-Fi connection only, no TCP
- Connection order is incorrect
- Firewall blocks communication

handle

1. Press **Stop**
2. Reset the state by **creating a new one**
3. Press **Start**
4. Check Firewall permissions
5. If that doesn't work, **turn the device on** → **Standby** → **Connect to Wi-Fi** → **Start** from the beginning

---

3. The waveform remains in a straight horizontal line

Symptoms

- The waveform is a single straight line
- The numbers are not updated

cause

- Stopped state
- TCP communication is broken

handle

1. Check if the status is **Connected**
2. Press **Start**
3. If it doesn't work, **stop it and start it** again
4. If that doesn't work, try the connection procedure again.

---

4. Data stops/discretely

Symptoms

- The waveform stops midway
- The scan proceeds in a jumpy manner

cause

- Wireless communication delays
- PC overload
- Sound processing and other app effects

handle

1. **Do not interrupt** (wait until the end)
2. Close unnecessary apps
3. MAG Live does not produce sound
4. Rescan when complete

---

5. The colors are all different and it makes me feel uneasy (in an empty space)

Symptoms

- Color appears even though there is nothing
- 3D display is patchy

cause

- Relative coloring
- The initial standard is not yet stable

handle

1. Finish **the race to the end**
2. Rescan only areas of interest with relative display

3. Check overall trends with absolute display

---

6. Slow performance/errors when opening files

Symptoms

- Opening a file is slow
- I get an error
- The screen is flashing

cause

- File operations are performed during a TCP connection

handle

1. **Stop**
2. Confirm that the status becomes **disconnected**
3. Then perform file operations

---

7. MAG Live Scan cannot be connected

Symptoms

- MAG Live status is not connected
- No response when started

cause

- Firewall blocking
- Wi-Fi reconnection required

handle

1. **Disconnect** Wi-Fi "GEOHUNTER" on Windows
2. Reconnect
3. **Restart** MAG Live
4. Check Firewall permissions

---

8. Values are jagged and difficult to read

Symptoms

- The waveform is extremely jagged

cause

- Raw data display (Smooth=0)

handle

1. Set **Smooth=2**
2. If it's still rough, 3
3. Only when checking raw data: 0 to 1

---

9. Sensitivity is unstable and the reaction is too strong

Symptoms

- Always reacting
- Picking up too much influence from the surroundings

cause

- The sensor height is too low
- Influence of surrounding metal

handle

1. the sensor height to **15-30cm**
2. **Hold** the sensor vertically
3. Stay away from metal objects

---

10. The connector won't come out or go in

Symptoms

- The connector won't come off
- Does not insert

cause

- Incorrect operation of the locking mechanism
- The orientation is incorrect

handle

1. **Be sure to turn the power off**
2. Remove the cable while pressing the lock button
3. Align the notches and insert until **it clicks**

Final Check (Golden Rules of Recovery)

- Turn on the device → **wait 30 to 60 seconds**
- Wi-Fi = GEOHUNTER
- Start → **Check Connected**
- **Stop** after completion