


GPX 6000™

GPX 6000™ USER MANUAL

POWERED BY

GEO
SENSE-PI™


MINELAB

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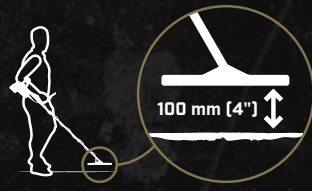
For instruction manuals,
videos and training, visit:
www.minelab.com/LearnGPX6000


Getting Started

This section shows you how to quickly set up your detector to begin detecting with minimal adjustment, and describes how to identify and adjust key detector functions.


Quick Start

Beginning with Factory Default Settings is recommended before using this Quick Start procedure.






1 | **TURN ON**



2 | **RAISE AND LOWER COIL FOR 10 s**



3 | **BEGIN DETECTING**

Factory Default Settings

The factory default settings are optimised for detecting in almost all conditions. The settings are a practical choice for users who want to begin successfully detecting without the need to manually adjust detector settings.

Quick Start is best used with these factory default settings:

- ▶ **Sensitivity:** Auto
- ▶ **Ground Type:** Difficult

Factory Reset

Factory default settings can be restored at any time by conducting a factory reset.

1. Ensure the detector is powered off.
2. Press and hold the power button for 7 seconds.
3. When factory reset is complete, there is a confirmation tone and 'FP' (Factory Preset) is displayed.

FP 'FP' is displayed when factory reset is complete.

Achieving Maximum Depth



Maximum depth is achieved by having the Threshold Tone on. To toggle the Threshold Tone on/off, long press the Ground Type button.

See "[Manual Sensitivity](#)" (page 12) for more information on using the Threshold Tone when adjusting the manual sensitivity to maximise detection depth.

Controls



- | | |
|------------------------------|---|
| 1. Bluetooth® Control | Enables Bluetooth® for connection of wireless headphones (page 7).

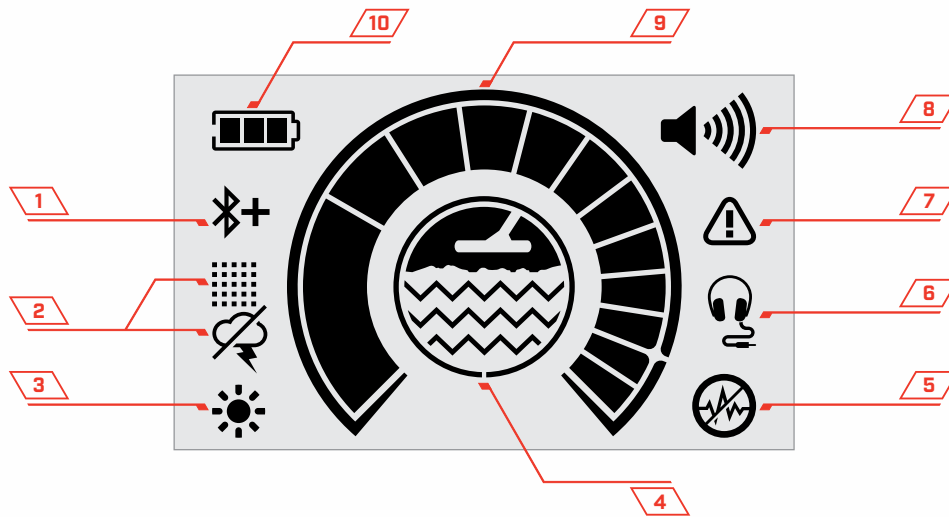
Initiates Bluetooth® pairing mode for connecting Bluetooth® headphones (long press for at least 2.5 s) (page 7). |
| 2. Backlight Adjust | Cycles through the backlight brightness settings – high, medium, low and off. |
| 3. Power On/Off | Turns the detector on and off.









Restores factory default settings (press and hold from off for at least 7 s) (page 3). |
| 4. Sensitivity Adjust | Adjusts the sensitivity level (page 12). |
| 5. Ground Type | Toggles between Difficult and Normal Ground Type (page 15).

Toggles between the Threshold On / Off settings (long press for at least 2.5 s) (page 22). |
| 6. Noise Cancel | Initiates the Noise Cancel process (page 13).

When a Double-D coil is connected, toggles between the Double-D Modes – EMI Cancel and Conductive Ground Cancel (long press for at least 2.5 s) (page 21). |
| 7. Volume Adjust | Adjusts the audio Volume Level. |
| 8. Quick-Trak | Press and hold Quick-Trak Ground Balance to conduct a Ground Balancing operation (page 16). |

Display



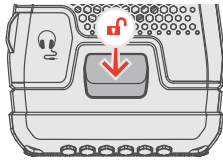
- | | |
|-----------------------------------|--|
| 1. Bluetooth® Indicator | Indicates that Bluetooth® wireless audio is on (page 7). |
| |  Bluetooth® Qualcomm® aptX™ Low Latency  Standard Bluetooth® |
| 2. Double-D Mode Indicator | Only available when using a Double-D coil (page 21). |
| |  Electromagnetic Interference (EMI) Cancel (default)  Conductive Ground Cancel |
| 3. Backlight Indicator | Indicates that the backlight is on. |
| 4. Ground Type | Displays the selected Ground Type (page 15). |
| |  Difficult (default)  Normal |
| 5. Noise Cancel | Flashes when Noise Cancel is in progress (page 13). |
| 6. Headphones Connection | Indicates that headphones are connected (page 7). |
| |  Bluetooth® headphones connected  Wired headphones connected |
| 7. Error | Indicates that there is a system error (page 23). |
| 8. Volume Level | Displays the detector audio volume. |
| 9. Sensitivity Level | Displays the sensitivity level.
Levels 1 to 10 are manual settings (page 12).
Levels 11 and 12 are automatic settings – Auto, and Auto+ (page 11). |
| 10. Battery Level | Indicates the current battery level. |

Battery

The GPX 6000™ is supplied with a lithium-ion rechargeable battery. Beginning each detecting session with a fully charged battery is recommended.

The GPX 6000™ battery can be charged using the supplied charging methods:

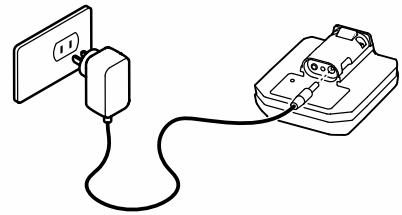
- ▶ The supplied AC plug pack (100 to 240 V AC)
- ▶ Typical 12 V DC car or truck systems using the supplied direct battery connection clips.



Press down on the battery locking lever to release the battery.

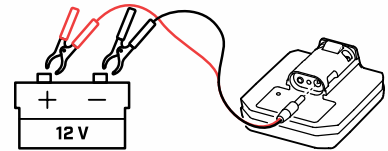
Charging the Battery – AC Charger

1. Connect the AC charger plug pack to a powered wall outlet.
2. Plug the charging connector into the charging socket on the top of the battery.
3. The battery charging status LED flash green during charging. When charging is complete, the charge status LED will remain steady on green.






Charging the Battery – DC Charger

1. Attach the black negative (-) clip to the negative (-) battery terminal.
2. Attach the red positive (+) clip to the positive (+) battery terminal.
3. Plug the charging connector into the charging socket on the top of the battery.
4. The battery charging status LED flash green during charging. When charging is complete, the charge status LED will remain steady on green.



Charge Status LED

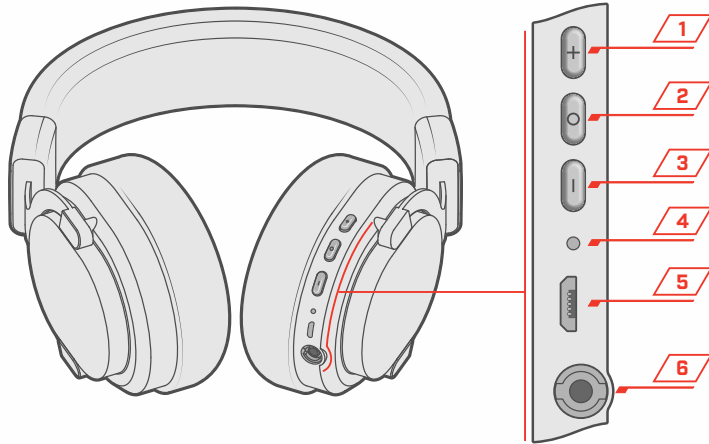
The charge status of the battery is indicated on the battery decal.

-  Charging (flashing)
-  Fully charged (on)
-  Error

Bluetooth® Headphones

Bluetooth® headphones with aptX Low Latency™ compatibility such as the Minelab ML 100 wireless headphones are best used with GPX 6000™ for best performance. Standard Bluetooth® headphones are also compatible.

Minelab ML 100 headphones use aptX™ Low Latency technology, which delivers faster, higher quality audio than standard Bluetooth®, so it will give more precise and faster detection responses.



1. Volume Plus button (+)

2. Multi-function button

3. Volume Minus button (-)

4. Status LED

- ✦ Pairing mode (alternating blue and red)
- ⦿ Connected (flash every 3 sec)
- ⦿ On, not connected (flash every 2 sec)
- Charging
- Charging complete

5. USB Micro-B charging socket

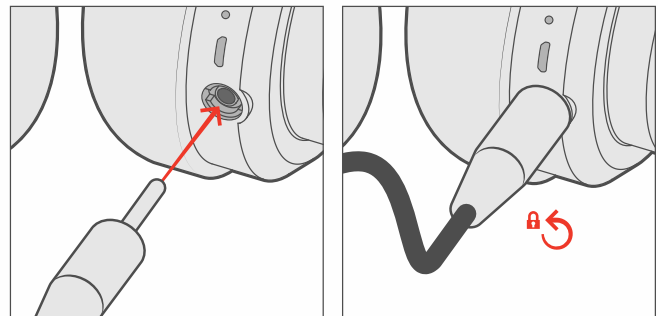
Connect the USB charging cable to charging USB socket of the headphones. The Status LED will remain solid red during charging. When charging is complete, the Status LED will turn solid blue. NOTE: USB Charger is not supplied. Any generic high quality USB charger can be used.

6. Headphone socket 3.5 mm [1/8 inch]

Optional Wired Operation

The ML 100 headphones are supplied with a detachable auxiliary cable for wired operation.

To use the cable, plug the connector into the headphone jack and turn 90° anti-clockwise to lock the connector. This prevents the connector from being accidentally disconnected.



ML 100 Headphones Pairing Procedure

Pairing the ML 100 headphones is only required at first time use. They will automatically connect for all future uses. Re-pairing is required following a Factory Reset of either the headphones or the detector.

When Bluetooth® headphones are paired, the Bluetooth® Indicator will indicate the type of headphones that are in use.

 Standard Bluetooth®  Bluetooth® Qualcomm® aptX™ Low Latency

START ▶

1. Make sure headphones are off, and close to the detector.

Ensure the headphones are turned off and are no more than 1 metre (3.3 feet) away from the detector.

2. Turn on the headphones and enter pairing mode.



Press and hold the Multi-Function button on the headphones until two ascending tones are heard and the Status LED alternates blue and red.

3. Enable Bluetooth® on the detector and enter pairing mode.



Press and hold the Bluetooth® button on the side of the GPX 6000™ control panel until the Bluetooth® indicator begins to flash rapidly.

For first-time use of the detector or following a factory reset, a short press of the Bluetooth® button will immediately initiate the pairing sequence.

4. Headphones will automatically connect.



If pairing is successful, the headphones will beep, and the Bluetooth® and wireless headphones indicators will remain on. The Status LED on the headphones will flash blue once every 3 seconds during use.

To Factory Reset the ML 100 headphones, press the Multi-Function button for more than 10 seconds. All previous pairings and settings will be deleted.

Coils

Selecting the correct coil size and configuration will optimise your GPX 6000's performance in a range of detecting scenarios. Understanding when to use each coil will increase the productivity of your detecting sessions.

The GPX 6000™ is supplied with two coils — a GPX 11™, plus either a GPX 14™ or GPX 17™ coil depending on your region.

GPX 11™ Mono

The 11-inch round monoloop coil is a great general-purpose coil that is recommended for most detecting conditions. It is a good all-rounder that has excellent depth and sensitivity, is very sensitive to smaller nuggets, and is easy to manoeuvre around obstacles.

GPX 17™ Mono

The 17 × 13-inch elliptical monoloop coil is the top performer when searching for larger deep nuggets in less conductive (salty) ground. It can effectively cover large areas of ground quickly and efficiently.

GPX 14™ Double-D

The 14-inch round Double-D coil excels in the following conditions:

- ▶ Where there are high levels of electromagnetic interference.
- ▶ In very conductive (salty) soils.






It can operate successfully in conditions that render monoloop coils unusable. Conductive (salty) soils commonly occur when soil contains salt, and is often most noticeable after rain when ground salt is dissolved in water.

Use of a Double-D coil is only recommended if good results cannot be achieved using a monoloop (Mono) coil.

When a Double-D coil is connected, there are two Double-D modes available to choose from. It is best to set the Double-D mode based on the source of noise. For more information, see "[Choosing the Right Double-D Mode](#)" (page 21). Generally, the Factory Preset Double-D mode (EMI Cancel) will be adequate when first getting started.

Changing the Coil

START ▶

1. Turn the detector off.		Ensure the detector is turned off before unplugging the coil connector.
2. Unplug and remove the coil.		Unplug the coil connector from the control box. Undo the coil bolt and remove the coil.
3. Attach and plug-in the new coil.		Attach the new coil, confirming that the two yoke washers are in place. Fasten the coil with the plastic bolt — do not over-tighten. Plug the coil connector into the control box.
4. Turn the detector on.		Turn the detector back on.
5. If using a Double-D coil, select a Double-D mode.	 Long press for at least 2.5 s	Set the Double-D mode based on the source of noise. EMI Cancel (default) is adequate for first time use, however experienced users should set the Double-D mode based on the conditions present. For more information, see " Choosing the Right Double-D Mode " (page 21).

High Performance Automatic Operation

The GPX 6000™ is engineered for easy operation without loss of performance. GeoSense-PI™ technology provides maximum depth by monitoring your detecting activity and environment – it automatically tracks and removes unwanted ground response, so minimal user input is required.

Intelligent Automatic Operation

The procedure below is a fail-safe way to begin detecting in a high-sensitivity automatic mode. Once complete, the GPX 6000™ will automatically maximise sensitivity while minimising noise, so you can concentrate on finding gold. Note that this procedure is the same as the Quick Start procedure (page 3) however a Factory Reset step has been included.

START ▶

1. Factory Reset the detector.



Long press for at least 7 s

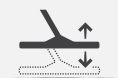
Ensure the detector is powered off, then press and hold the power button for 7 seconds. When factory reset is complete, there is a confirmation tone and 'FP' (Factory Preset) is displayed.

2. Hold the coil 100 mm (4 in) above the ground.



Hold the coil still and 100 mm (4 in) above, and parallel to the ground – the ground must not contain metal targets.

3. Raise and lower coil for 10 seconds.



For 10 seconds, raise and lower the coil between 10 and 100 mm (½ and 4 in) above the ground to expose the coil to the full range of the ground – try to lower the coil as close to the ground as possible without touching the ground.

▶ Begin detecting.

Every 5 to 10 minutes throughout your detecting session, it is recommended that the coil is raised and lowered above the ground a couple of times from 10 to 100 mm (½ to 4 in). This ensures that the detector is thoroughly ground balanced and operating at maximum sensitivity. In environments with more ground noise, repeat this process more frequently.

▶ If the conditions are very quiet, increase sensitivity from Auto to Auto+.

▶ If the detector becomes noisy, conduct a [Noise Cancel Procedure](#) (page 13).

▶ If the Noise Cancel Procedure doesn't resolve the noise, follow the [Double-D Coil Noise Cancel Procedure](#) (page 14).

Automatic Sensitivity

There are two Automatic sensitivity modes, Auto and Auto+. Both modes automatically maximise sensitivity and track and remove ground noise, however Auto+ can be deeper in low-noise conditions. Auto+ generally has slightly higher sensitivity allowing weaker targets to be heard, however some responses may be noise rather than weak targets.



The sensitivity adjustment buttons are used to select Auto and Auto+.

Auto Sensitivity Guide



Auto

- ▶ Provides smoother audio
- ▶ Recommended for most users
- ▶ Threshold tone off by default



Auto +

- ▶ Use in locations with low EMI and low ground noise
- ▶ Threshold tone off by default

Manual Procedures and Settings

Go beyond the factory default Automatic settings to gain even greater control of your GPX 6000™. This section describes how and why you should adjust key detector settings to optimise your detector for specific detecting scenarios.

Manual Sensitivity

Choose the highest stable manual sensitivity setting for optimum performance, or use the automatic settings.







Sensitivity levels 1 to 10 are manual sensitivity settings. By default, these manual sensitivity settings have a constant audible Threshold Tone that converts all incoming signals into an audible tone. The Threshold Tone will have very small variations that is the background tone. The Threshold Tone is optional, and can be turned on or off (page 22).



These small variations in tone are easily discerned by the human ear, and make tiny signals more apparent than if there was no Threshold Tone. Listening to this tonal variation while you adjust the sensitivity allows the greatest number of target signals to be heard above ordinary ground signals or interference, thereby maximising your detecting depth.

Manual Sensitivity Adjustment Procedure

- ▶ Always try Noise Cancel (page 13) and Quick-Trak (page 16) to resolve noise before reducing the sensitivity level.
- ▶ Generally start with a Mono coil unless you are detecting in areas with known high levels of EMI or soil conductivity.

When setting the sensitivity manually, select the highest level where you can detect small variations in the Threshold Tone, and no higher. This will maximise the detector's sensitivity to gold. There should be some variation in the audio responses, but it should not sound erratic.




START ▶	
1. Set the sensitivity to level 1.	 Reduce the sensitivity to level 1 using the minus button.
2. Increase until false signals occur.	  <ul style="list-style-type: none">▶ If noise is the result of EMI, keep the coil stationary while adjusting the sensitivity.▶ If noise is the result of ground noise, swing the coil close and parallel to the ground while adjusting the sensitivity.
3. Reduce by one level.	 Reduce the sensitivity level just enough that the false signals disappear.
4. Check over the ground and reduce if needed.	  Sweep the coil over a clear patch of ground, and reduce the sensitivity level further if any ground noise is encountered.

Manual Sensitivity guide	
 <ul style="list-style-type: none">▶ Smoother audio▶ Some target signals may not be audible▶ Only use if Noise Cancel and Quick-Trak do not reduce noise▶ Threshold tone On by default	 <ul style="list-style-type: none">▶ Likely to hear more targets in low-noise conditions▶ Some targets may be masked by noisy audio▶ Threshold tone On by default

Noise Cancel

If audio responses become erratic due to EMI, initiate the Noise Cancel process to automatically select a quieter detecting channel.

Noise Cancel Procedure

START ▶		
1. Hold the coil 100 mm (4 in) above the ground.		Hold the coil still and 100 mm (4 in) above, and parallel to the ground for the duration of the Noise Cancel procedure.
2. Press the Noise Cancel button.		Press the Noise Cancel button.
3. Wait for confirmation tone (approximately 5 seconds).		The Noise Cancel icon will flash while Noise Cancel is in progress (approximately 5 seconds). A confirmation tone indicates that Noise Cancel is complete.
▶ Begin detecting.		
▶ If the detector is still noisy when using a mono coil, follow the Double-D Coil Noise Cancel Procedure (page 14).		

Double-D Coil Noise Cancel Procedure

The GPX 6000™ Double-D coil excels in locations that have very high levels of interference. They are less noisy than mono coils, but also provide less depth.

Generally, a Double-D coil should only be used if noise cannot be managed by using a Mono coil with the [Noise Cancel Procedure \(page 13\)](#).

This procedure can be used in areas that have known high levels of EMI or very conductive (salty) soils.

START ▶

1. Connect the GPX 14™ Double-D coil.



Turn off the detector and change to a Double-D coil (see ["Changing the Coil"](#) on page 9).

2. Hold the coil 100 mm [4 in] above the ground.



Hold the coil still and 100 mm [4 in] above, and parallel to the ground – the ground must not contain metal targets.

3. Turn the detector on.



Turn the detector on.

4. Ensure the Double-D mode is set to EMI Cancel.



To set the Double-D mode to EMI Cancel, long press the Noise Cancel button for at least 2.5 seconds.

5. Hold the coil still above the ground and assess noise levels.



Hold the coil still and as close and parallel to the ground as possible. Listen carefully to the signals; there should be audible tone variation, but not so much that signals sound erratic or noisy.

▶ Begin detecting.

▶ If the detector is still noisy, continue to the next step.

6. Noise Cancel.



Conduct the Noise Cancel Procedure ([page 13](#)). This will remove noise caused by EMI.

▶ Begin detecting.

▶ If the detector is still noisy, continue to the next step.

7. Reduce the sensitivity level.



Reduce the sensitivity level. Swing the coil close and parallel to the ground when adjusting the sensitivity in order to remove ground noise.

▶ Begin detecting.

▶ If the detector is still noisy, change to an Auto sensitivity setting (Auto or Auto+).

Ground Balance

Ground Balancing enables the detector to separate unwanted ground signals from target signals. The GPX 6000™ features automatic ground tracking as well as manually initiated Ground Balance. It also has two Ground Type settings for even greater Ground Balance control.

The GPX 6000™ is constantly monitoring and tracking the ground as well as the operators' input in order to track and remove ground noise. The in-built automatic tracking is a reliable choice for most detecting conditions, however this section will guide you through the additional ground balancing options and when to use them.

To fully understand the ground balance process there are several things to consider:

Upon Start-up

Shortly after the detector is powered on and the start-up process is complete, the detector will begin to rapidly track and cancel the ground response. For this reason it is recommended to hold the coil 100 mm (4 in) above the ground before powering on the detector. This ensures as much time as possible is available to capture the ground response as the coil is raised and lowered over the ground.

Always follow the turn-on sequence over ground that does not contain any metal targets.

Automatic Tracking

The detector is always tracking the ground and is constantly removing ground noise. Automatic tracking provides slow, steady and reliable ground balancing for a seamless detecting experience.

Quick-Trak

The operator can manually initiate a rapid ground balance by performing the Quick-Trak procedure (page 16). This is required when moving between different detecting areas in order to manage any changes in ground conditions.

Ground Type

Ground Type controls the amount of unwanted ground noise that is removed from the audio response.

Difficult Ground *(Default)*



In some ground, there are medium to high levels of mineralisation, or the ground conditions will vary quite quickly across several metres (yards) of distance. To manage these ground conditions, changing the Ground Type to Difficult is recommended.

Normal Ground



If the ground response is minimal, changing the Ground Type to Normal is recommended.

Conductive Ground

In some circumstances the ground noise may be due to conductive ground effects. Conductivity is common in salty ground or in wet ground after a recent rain. In these instances, change to a Double-D coil and then follow the [Double-D Coil Noise Cancel Procedure](#) (page 14).

Quick-Trak Ground Balance Procedure

Follow the Quick-Trak Ground Balance procedure to quickly recalibrate the detector to the new ground.

GPX 6000™ tracks automatically to changing ground conditions during normal use. It is effective for typical detecting in most grounds. There will be times when the automatic ground tracking will not be able to track fast enough, such as when moving to a different type of ground. In these situations, a Quick-Trak Ground Balance will quickly recalibrate the detector to the new ground.

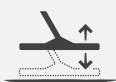
START ▶

1. Press and hold the Quick-Trak button.



Press and hold the Quick-Trak button – it must remain pressed throughout the Quick-Trak procedure.

2. Raise and lower the coil.



Raise and lower the coil between 10 to 100 mm (½ to 4 in) above the ground to expose the coil to the full range of the ground – try to lower the coil as close and parallel to the ground as possible without hitting the ground.

3. Swing the coil from side-to-side.



Swing the coil from side-to-side once the ground noise has significantly reduced. This will capture any remaining ground signals for a thorough ground balance.

4. Release the Quick-Trak button.



Once the ground noise is at a comfortable level or will not reduce any further, release the Quick-Trak button.

▶ If there is still noise when the coil is passed over the ground, follow the [Ground Balance Procedure \(page 17\)](#).

In some cases, try detecting on a nearby location in case the noise is being caused by a target / metal object. Try performing Quick-Trak over a new patch of ground.

Auto and Quick-Trak Guide

Auto

- ▶ Ideal for both new and experienced users.
- ▶ Tracks successfully to most ground conditions.
- ▶ Detector continuously tracks ground during detecting, but Quick-Trak may still be used to rebalance to changing or variable ground conditions.
- ▶ Ground balances more slowly than Quick-Trak.

Quick-Trak

- ▶ Quick-Trak is a manually initiated Ground Balance process for faster ground balancing than Auto.
- ▶ Use to ground balance to a chosen area of ground, e.g. patches of extreme mineralisation, hot rocks etc.
- ▶ Use in between digging and checking for a target, so that the target is not 'balanced out' accidentally.

Ground Balance Procedure

A complete Ground Balance procedure is recommended below. This guides you through the ideal steps to deal with a number of different ground conditions.

The procedure is a sequence of steps that will help you to identify the type of ground you are detecting, and then provides the best steps to manage that noise. Ground is categorised into three types:

- ▶ **Normal** – Ground with low levels of mineralisation.
- ▶ **Difficult/Variable** – Ground that has medium to high levels of mineralisation, or varying levels of mineralisation and/or conductivity from patch to patch.
- ▶ **Conductive** – Ground that has high levels of conductivity, often due to high salt content.

START ▶

Normal (Quiet) Ground ▶

1. Set the Ground Type to Normal.



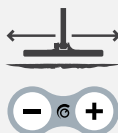
Set the Ground Type to Normal by pressing the Ground Type button.

2. Quick-Trak.



Perform the Quick-Trak procedure (page 16). This will help the detector collect as much information about the ground as possible for an optimum ground balance.

3. Adjust the sensitivity.



Adjust the sensitivity level (page 12).
Swing the coil close and parallel to the ground when adjusting the sensitivity in order to remove ground noise.

▶ Begin detecting.

▶ If the detector is still noisy when detecting, continue the steps below for difficult/variable ground.

Difficult/Variable Ground ▶

4. Set the Ground Type to Difficult.



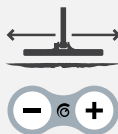
Set the Ground Type to Difficult by pressing the Ground Type button.

5. Quick-Trak.



Perform the Quick-Trak procedure (page 16).

6. Adjust the sensitivity.





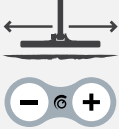


Adjust the sensitivity level (page 12).
Swing the coil close and parallel to the ground when adjusting the sensitivity in order to remove ground noise.

▶ Begin detecting.

▶ If the detector is still noisy when detecting, then noise is the result of conductive (salty) ground conditions. Continue the steps for conductive ground (page 18).

Ground Balance Procedure *(Continued)*

Conductive (Salty) Ground ▶		
7. Change to a Double-D coil.		Turn off the detector and change to a Double-D coil (see "Changing the Coil" on page 9).
8. Turn the detector on.		Turn the detector back on.
9. Ensure the Double-D mode is set to Conductive Ground Cancel.	 Long press for at least 2.5 s	To set the Double-D mode to Conductive Ground Cancel, long press the Noise Cancel button for at least 2.5 seconds.
10. Quick-Trak.		Perform the Quick-Trak procedure (page 16).
11. Adjust the sensitivity.		Adjust the sensitivity level (page 12). Swing the coil close and parallel to the ground when adjusting the sensitivity in order to remove ground noise.
▶ Begin detecting.		

Advanced Concepts

Identifying the Source of Detector Noise

When detecting, there are generally three types of noise that can be heard depending on the detector settings, detecting location, or other factors. Accurately identifying the type of noise you are experiencing will help you to apply the correct solution.

Metal detectors experience background noise that can usually be attributed to one or more of three external sources. Understanding the different sources of noise and how to identify them can substantially help you to properly tune your detector.

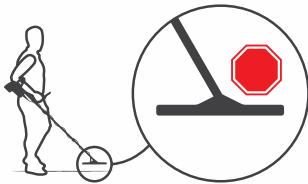
Note: In an automatic sensitivity setting, the detector will attempt to automatically compensate for noise from interference, therefore identifying the source of interference is best done using a manual sensitivity setting.

Electromagnetic Interference (EMI)

EMI can originate from many sources. The most obvious are power lines, electric fences, electric motors, transformers, radio transmitters and mobile (cell) phones. Most EMI is generated by human activity, though distant lightning strikes are also a source of EMI.

To Identify EMI:

EMI is easy to identify because it is the only source of noise that is present when the coil is stationary. To verify that noise is due to EMI, hold the coil stationary, and away from metal objects to see if the noise remains.



To Manage EMI:

- ▶ Perform Noise Cancel [\(page 13\)](#).
- ▶ Use a Double-D coil with the Double-D mode set to EMI Cancel [\(page 21\)](#).

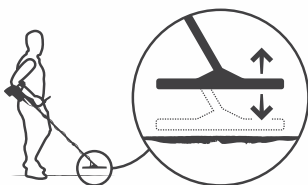
Ground Noise

Ground noise is present when the metal detector interprets the ground as being a target due to the mineral content of the ground, and can be categorised as the following:

- ▶ **Normal** – Ground with low levels of mineralisation.
- ▶ **Difficult** – Ground that has medium to high levels of mineralisation.
- ▶ **Variable** – Ground that has varying levels of mineralisation and/or conductivity from patch to patch.

To Identify Ground Noise:

Raise and lower the coil above the ground a couple of times from 10 to 100 mm (½ to 4 in). If you hear signals that correlate with the coil movements, and the signals stop when the coil is stationary, then it is ground noise.



To Manage Ground Noise:

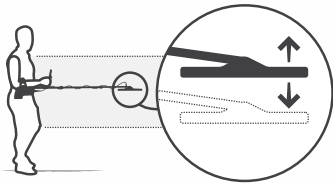
- ▶ Perform a Ground Balance. To achieve the most thorough Ground Balance, follow the full-length Ground Balance Procedure (page 17). To rapidly balance to the ground, follow the Quick-Trak Ground Balance Procedure (page 16).
- ▶ In variable ground, use the Difficult Ground Type setting (page 15).

Conductive Ground Noise

Conductive soils commonly occur when the soil contains salts. The effects of conductivity are most noticeable after rain when salts are dissolved in water and become conductive. Ground may be conductive (salty) without any obvious environmental signs. If a detector is sensitive enough to detect small gold, then it is also likely to detect low levels of conductivity.

To Identify Conductive Ground Noise:

To verify that noise is due to conductive ground, hold the coil 1 metre (3.3 feet) above the ground. Tilt the coil so that it is parallel to the ground (horizontal) and then raise and lower the coil in the air between knee and shoulder height. If you hear noise that correlates to the coil movement, then noise is likely due to conductivity in the ground.



To Manage Conductive Ground Noise:

- ▶ Use a Double-D coil with the Double-D mode set to Conductive Ground Cancel (page 21).

Double-D Modes

Double-D Modes manage noise from EMI or conductive (salty) ground when using the GPX 14™ Double-D coil. These modes are only available when a Double-D coil is in use.

A Double-D coil has characteristics that allow it to cancel out EMI and conductive (salt) signals. A Double-D coil contains two back-to-back 'D' shaped copper wire windings that overlap in the centre of the coil.

The GPX 6000™ can sense targets in each of these two windings. EMI, conductive (salt) signals, and targets all produce a different response in each winding that can then be compared. EMI signals produce mostly identical responses in each winding because they are from distant sources. Salty soil is effectively a large and relatively uniform noise source, hence it produces a larger signal in one specific winding (the transmit winding). In comparison, gold nuggets produce a very different response in each winding as the coil moves over them. The signal from the nugget varies depending on the detector swing as well as the nugget depth.

By subtracting the response from these two windings in different proportions, the detector effectively minimises the response from distant EMI or conductive (salty) ground. This subtraction also affects target responses. The response from deeper nuggets is reduced, while shallower nuggets are mostly unaffected. This means that a Double-D coil can be set to optimally cancel either EMI or conductive (salty) ground. Sensitivity to shallow targets will still be quite good in either case but deep targets will be more difficult to detect.

Set the Double-D Mode

START ▶

1. **Press the Noise Cancel button for at least 2.5 seconds.**



Long press the Noise Cancel button for at least 2.5 seconds to toggle between the two Double-D modes.

The icon for the currently enabled Double-D mode is displayed.

Choosing the Right Double-D Mode



EMI Cancel (*default*): use when noise is caused by atmospheric interference.

EMI is noise that is present when holding the coil stationary.



Conductive Ground Cancel: use when noise is caused by interference from conductive (salty) soils. Conductivity is the cause of noise that is present when raising and lowering the coil in the air between knee and shoulder height above the ground.

Double-D Mode Guide

EMI Cancel (*default*)

Reduces the effect of EMI.



Use when detecting:

- ▶ Near power-lines
- ▶ In stormy weather
- ▶ Close to other detectors

Conductive Ground Cancel

Reduces the effect of conductive (salty) soils.



Use when detecting:

- ▶ In large open gold fields with conductive (salty) soil
- ▶ In wet ground

Threshold Tone

The optional Threshold Tone is a constant background tone that can help to make tiny signals more apparent. It can also help you to set the optimum sensitivity level.

See "[Manual Sensitivity](#)" (page 12) for more information on using the Threshold Tone when adjusting the manual sensitivity to maximise the depth of your detector.

The Threshold Tone is off by default in Auto and Auto+ sensitivity, and On by default in all Manual sensitivity settings. The Threshold Tone can be toggled on/off. Each time the detector is powered off, the Threshold Tone is returned to its factory default settings.

Turn the Threshold Tone On/Off

START ▶

- 1. Press the Ground Type button for at least 2.5 seconds.**



Long press for at least 2.5 s

To toggle the Threshold Tone on/off, long press the Ground Type button for at least 2.5 seconds.

The Threshold Tone is audible at any volume level.

Troubleshooting

If you experience any of the problems listed in this section, follow the recommended steps, in order, before contacting an authorised Minelab service centre.

Errors

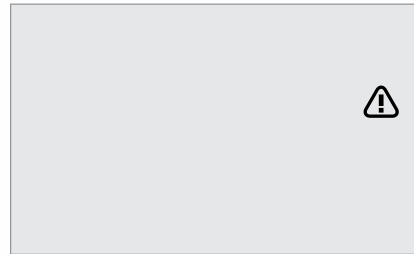
Coil Error

If there is a coil error, the error icon and the coil icon is displayed for 5 seconds before the detector automatically powers off.



System Error

If there is a system error, the error icon is displayed for 5 seconds before the detector automatically powers off.



Error Troubleshooting

The coil and error icons are displayed, then the detector turns off after 5 seconds

1. Check that the coil connector is connected properly at the front of the control box.
2. Check the coil cable for damage.
3. Check the coil for visible signs of damage.
4. Try another coil, if you have one available.
5. If the error persists, contact an authorised Minelab service centre.

Error icon is displayed, then the detector turns off after 5 seconds

1. Contact an authorised Minelab service centre.

Coil Overload

Very large metal objects close to the coil may overload the detector electronics. If this occurs, the coil icon will flash and an alarm tone will repeat until the coil is moved away from the source of the overload. The detector will automatically shut-down after 60 seconds of continuous coil overload.

Overloading is not harmful to the electronics of the detector.

General Troubleshooting

Detector does not turn on, or turns off by itself

1. Charge the battery.
-

No sound – ML 100 Headphones, wired operation

1. Check that the detector is on, and start-up has completed.
 2. Check that the headphones are plugged in.
 3. Check that volume is set to an audible level.
 4. Unplug the headphones and confirm that the detector speaker is audible.
 5. If available, try using a different set of headphones.
-

No sound – ML 100 Headphones, wireless operation

1. Check that the headphones are turned on.
 2. Check that detector Bluetooth® is turned on and paired with Bluetooth® headphones (i.e. the Bluetooth® icon is steady on).
 3. Check that the headphones are charged.
 4. Check that the detector volume is set to an audible level.
 5. Ensure the volume control on the headphones is set to an audible level.
 6. Try a different set of Bluetooth® headphones.
 7. Try wired headphones.
-

ML 100 Headphones will not pair

1. Power off the ML 100 headphones and then re-pair.
 2. Ensure the headphones are within 1 metre (3.3 feet) of the detector control unit, with no obstructions between the headphones and detector (including your own body).
 3. Move away from sources of interference such as mobile (cell) phones.
 4. If there are many other Bluetooth® devices nearby, pairing may take longer. Move away from the area and try to pair again.
 5. Perform a factory reset on the headphones and attempt to re-pair to the detector.
 6. Pair the detector with different Bluetooth® headphones, then attempt to re-pair ML 100 headphones to the detector.
-

Detector shafts are slipping under light load, or do not lock tightly

1. Unscrew the upper and lower twist locks. The threaded outer sleeve of each twist lock will separate completely from the inner sleeve.
 2. Slide the detector shafts apart.
The coil connector must remain connected to the detector during cleaning to prevent water ingress.
 3. Thoroughly rinse the twist lock parts and the shafts in clean water until all sand, dirt and grit is removed.
Do not use solvents to clean the shafts or twist locks.
 4. Dry the shafts with a clean cloth, then reassemble the shafts and twist locks.
-

In-built speaker sounds muffled or 'scratchy'

1. Make sure the detector is turned off.
 2. Remove the screw at the rear of the detector and then remove the speaker cover.
 3. Inspect the speaker for dirt and dust. If needed, gently clean the speaker with a soft damp cloth or rinse with clean water to remove built-up dust and dirt.
Do not use sharp tools to remove compacted dirt from the speaker, as damage could result.
If dirt is stubborn, wet the dirt and allow it to soften before rinsing/wiping it away.
-

Care and Safety

Operate and maintain your detector following the below recommendations to ensure its safe use and long life.

- ▶ Do not submerge the detector body in water — it is rain-proof only.
- ▶ All GPX 6000™ coils are waterproof to 1 metre (3.3 feet), however care must be taken to ensure the coil connector is not submerged.
- ▶ The battery pack is not waterproof — Do not immerse the battery pack in any liquid or allow water ingress.
- ▶ Wash your hands before handling the detector after applying sunscreen or insect repellents.
- ▶ Do not use solvents to clean. Use a damp cloth with a mild soap detergent.
- ▶ Never allow the detector to come into contact with gasoline/petrol or other petroleum-based liquids.
- ▶ Avoid getting sand and grit in the shafts and fastenings (e.g. coil yoke assembly and twist locks). If sand and grit accumulates in these parts they should be thoroughly rinsed and dried.
- ▶ Do not bring the detector or accessories into contact with sharp objects as this may cause scratches and damage.
- ▶ Do not leave the detector in excessive cold or heat longer than necessary. Covering it when not in use will help protect it. Avoid leaving it in a hot vehicle.
- ▶ Ensure the coil cable is in good condition and not subject to undue stress.
- ▶ Take precautions when transporting or storing the detector. Although the detector is constructed from the highest quality materials and has undergone rigorous durability tests, the detector parts and display screen could become scratched or seriously damaged if not treated with due care.
- ▶ Do not expose the ML 100 headphones or charging accessories to liquid/moisture or excessive humidity.
- ▶ Do not allow children to play with the detector or included accessories — small parts can be a choking hazard.
- ▶ Only charge rechargeable batteries and accessories according to the instructions provided.
- ▶ Avoid charging rechargeable batteries and accessories in extreme temperature conditions.
- ▶ Remove battery prior to air transportation.

DISCLAIMER

The Minelab metal detector described in this instruction manual has been expressly designed and manufactured as a quality metal detector and is recommended for treasure and gold detecting in non-hazardous environments. This metal detector has not been designed for use as a landmine detector or as a live munitions detection tool.

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Qualcomm® aptX™ Low Latency

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Specifications

Search Modes (Ground Type)	Difficult (default) Normal
Double-D Modes	EMI Cancel (default) Conductive Ground Cancel
Ground Balance	Auto Manual (Quick-Trak)
Noise Cancel	Automatic (on start-up) Manual (as needed – 5 s duration)
Sensitivity	Manual (levels 1-10) Auto (level 11) Auto+ (level 12)
Threshold Tone	On Off
Volume	5 levels
Length	Extended: 155 cm (61 in) Collapsed: 67 cm (26.5 in)
Weight	2.1 kg (4.6 lb) (with 11" round Monoloop coil)
Display	Monochrome LCD with backlight
Available Coils	GPX 11™ 11" round Monoloop GPX 14™ 14" round Double-D GPX 17™ 17"×13" elliptical Monoloop
Audio Output	In-built loudspeaker Wired 3.5 mm (1/8") headphones Bluetooth® wireless audio (aptX™ Low Latency)
Supplied Headphones	ML 100 wireless headphones
Supplied Batteries	Rechargeable Lithium-ion battery 5833 mAh
Battery Runtime	8 hours (approximately)
Battery Charge Time	5-6 hours (approximately)
Waterproof	Coils: submersible to 1 m (3.3 ft) Detector: splash / rain proof
Operating Frequency	1.225 kHz
Operating Temperature Range	-10°C to +50°C (+14°F to +122°F)
Storage Temperature Range	-20°C to 70°C (-4°F to 158°F)
Key Technologies	GeoSense-PI™ Bluetooth® aptX™ Low Latency

Equipment may vary according to the model or items ordered with your detector. Minelab reserves the right to respond to ongoing technical progress by introducing changes in design, equipment and technical features at any time.

For the most up-to-date specifications, visit www.minelab.com

