Practical Guide – How to Use the PPSM

Q Get to Know the Device Quickly:

2 Overview of the PPSM Components



This diagram helps you easily locate the buttons, the sample chamber, the screen, the sample compartments, etc.

• What is the PPSM and what is it used for?

The PPSM (Permafutur Paramagnetism Soil Meter) is a measuring device developed by Permafutur to analyze the paramagnetism of soils and rocks. It helps determine whether a soil is magnetically active and fertile, which can enhance plant growth.

This device is a modern evolution of the PCSM, invented by Phil Callahan, an American scientist passionate about natural farming and invisible energies in nature. He demonstrated that volcanic rocks like basalt can capture and transmit beneficial energy to plants due to their paramagnetic properties.

With the PPSM, you can:

- Assess the magnetic vitality of a soil,
- Compare rocks and mineral powders,
- Select the best amendments to naturally boost fertility.

O Step-by-Step Instructions

- 1. Power On
- Press the ON button.
- On first use of the day, leave the device powered on for 1 minute before starting.
- If it has been used recently, 10 seconds is enough.
- 2. Select the Measurement Range
- X1: Range from 0 to 2000 microCGS, ideal for soils (often < 1000 μmCGS).
- X10: Range from 0 to 20,000 microCGS, useful for highly active rocks such as basalt.

 \triangle If you try to measure a sample above 2000 microCGS in X1, the screen will display "1". This means the sample exceeds the range and should be measured in X10.

i Note: In X10 mode, the displayed value must be multiplied by 10 to get the actual reading in microCGS (μ mCGS). \checkmark For example, if the screen shows 956 in X10, the actual value is 9560 μ mCGS.

- 3. Zeroing the Screen
- Use the COARSE and FINE Balance knobs to set the screen to zero or close to it.

- A Slight fluctuation is normal as the device measures ultra-weak magnetic signals, which may be affected by the environment (phones, Wi-Fi, etc.).
- \triangle Do not place a sample in the measuring chamber when zeroing the device.
- 4. Insert the Sample
- Once the range (X1 or X10) is selected and the screen is at 0: Insert EXACTLY 25 grams into the measuring chamber.
- The sample must be dry to ensure an accurate reading.
- 5. Reading and Interpreting Results
- Read the displayed value.
- Compare it with the interpretation table below:

Reading (X1)	Reading (X10)	CGS Value (µmCGS)	Interpretation
0-100	0 - 10	0-100	Poor soil
100 - 300	10 - 30	100 - 300	Decent soil
300 – 700	30 – 70	300 – 700	Very good soil
700 – 1200	70 – 120	700 – 1200	Superior soil
1200 - 3000	120 - 300	1200 - 3000	Good rock powder
3000+	300+	3000+	Excellent rock powder

PPSM Reading Interpretation Table

- What do negative values on the PPSM mean?

When the device displays a negative microCGS value, it means the sample is diamagnetic.

Diamagnetism is the opposite of paramagnetism: \checkmark A diamagnetic material slightly repels magnetic fields rather than amplifying them. \checkmark This can occur in mineral-deficient or degraded soils. \checkmark In such cases, the PPSM's coil detects a reduction in the magnetic field, generating a negative reading.

Negative values are often a sign of low soil vitality and may indicate a need for paramagnetic minerals such as basalt to restore fertility.

Calibration Sample



A reference sample calibrated using an original PCSM by Phil Callahan is included with your PPSM. It displays a value of 700 μ mCGS (±15).

PPSM and PCSM devices work with ultra-weak magnetic signals. Therefore, it's normal for the 700 μ mCGS reference to drift slightly over time (e.g., from 680 to 720). This fluctuation does not affect reliability.

The sample helps verify that the PPSM remains correctly calibrated around 700 µmCGS.

 \checkmark If the screen shows a value within this range (±15), the calibration is good.

⚠ If the value is significantly off (e.g., 750 or 650), adjust the GAIN knob as follows:

X Adjusting the GAIN

- 1. Leave the measuring cylinder empty and use the "Balance" dial to set the digital display to 0.
- 2. Place and leave the reference sample 700 in the measuring cylinder.
- Using a small screwdriver, adjust the blue potentiometer labeled "GAIN" located under the electronic board (see photo on the right) until the display reaches 700. ▲ Never touch the two other potentiometers.



Slowly turn the GAIN screw in either direction until you obtain a value close to 700 μCGS on the digital display.



How What is the GAIN knob for?

The GAIN knob adjusts the amplification of the displayed value. When you turn it: • All displayed values increase or decrease accordingly. • The adjustment is linear: changing 700 also shifts low (e.g. 100) and high values (e.g. 9000).

The higher the measured value, the more visible the effect of the GAIN adjustment.

Why a 700 μmCGS reference sample?

The provided sample is identical to that used with the original PCSM. It allows you to: • Check the reliability of your PPSM, • Adjust calibration precisely, • Maintain full compatibility with scientific measurements made using the PCSM over decades.

▲ PPSM Usage Precautions To ensure accurate and reliable readings, follow these guidelines:

Avoid electromagnetic interference: Do not measure near phones, Wi-Fi, or electronic devices.
Place the PPSM on a non-metallic surface (e.g., wood). Metal can disturb readings.
Remove metallic jewelry (bracelets, rings, watches...) during measurements.
Remove metallic or strong magnetic fields. These can temporarily alter sensitivity.
* Do not expose the PPSM to direct sunlight for long periods. Overheating can affect electronics and measurements.

Additional Note

Some samples may contain a high proportion of iron, which is naturally ferromagnetic. This can raise readings without reflecting true paramagnetic strength.

To better interpret results, consider analyzing the iron content of your soil or rock. This helps distinguish real paramagnetism from ferromagnetic interference.

***** May the PPSM guide you toward vibrant and fertile soils!

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