

Practical Uses for MGM4000

1. ANTHROPOLOGY AND ARCHAEOLOGY

- Buried walls, ditches, pits, postholes, hearths: Gradiometers are the standard for mapping subtle magnetic contrasts in soils disturbed by ancient human activity.
- Near-surface iron objects: Detection of nails, tools, kiln remains, slag, etc.
- Advantages of MGM4000: Portable vertical form, real-time OLED readout, operator-friendly bubble level, affordable alternative to \$15k–\$50k competitive models.
- Limitations: Sensitivity is lower than cesium or Overhauser units—so it's best at shallow (0–5 m depth) and moderate anomalies.

2. TREASURE HUNTING & EXPLORATION

- Large ferrous caches: Chests, weapons, cannons, anchors, or sealed entrances (e.g., suspected Spanish/Templar/Viking caches).
- Caves / adits / voids with magnetic sealing: Reinforced entrances often create dipole signatures; gradient response can flag them.
- Custom firmware allows fast walking, with tilt/heading correction to stabilize readings. Will detect non-metallic treasures that are associated with disturbed soil or built structures.

3. UXO (UNEXPLODED ORDNANCE) & MILITARY CLEARANCE

- Ferrous ordnance, mines, shells, bombs: Gradient systems suppress the Earth's background field, highlighting local dipoles.
- Typical deployment: Walked lines or grids with 3–18" ground clearance.
- Comparison: Similar functional class to fluxgate-based SENSYS and Bartington UXO tools, at a fraction of the cost.

4. GEOLOGICAL & ENVIRONMENTAL SURVEYS

- Fault mapping, dikes, basalt contacts: Near-surface magnetic contrasts in bedrock or lava flows.
- Buried infrastructure: Pipelines, drums, tanks, cables—environmental hazard surveys.
- Mineral exploration: Small iron ore lenses, magnetite sands, placer deposits.
- Best Fit: Projects that don't justify up to a \$50k+ cesium but still need gradient mapping.

5. EDUCATIONAL & TRAINING

- Universities / field schools: Affordable teaching tool for archaeology and geophysics programs.
- Workshops / student surveys: OLED feedback and CSV logging make it easy to demonstrate survey principles.
- Labs: Showcases integration of SPI sensors, GPS, tilt, and data logging in a real scientific instrument.

SWEET SPOT OF THE MGM4000

Anthropology, archaeology, treasure hunting, UXO screening, and environmental hazard detection.

Depth window: anomalies in the 0–5 m range, with stronger ferrous targets detectable deeper.

Portable, affordable, customizable — it fills the gap between hobbyist single-mag sensors and \$20k–\$50k professional cesium/Overhauser systems.