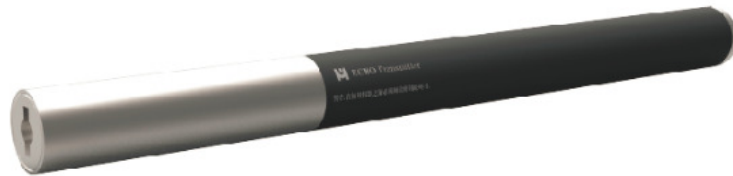




Underground Magnetics

# USER'S MANUAL



Underground Magnetics

[www.undergroundmagnetics.com](http://www.undergroundmagnetics.com)

MAG series ►

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# 1Caution

The user must understand safety procedures and correct operation methods before operating the HDD and the locating system.

HDD machines can cause property damages and personal injuries upon striking underground power lines, gas lines, phone lines, television cables, fiber optic cables, or sewage lines. Make sure to confirm and mark all underground utilities before operations.

Do not use the locating system near flammable and explosive substances.

Wear proper safety gear including steel-toed boots, safety gloves, helmets, reflective vests, and safety goggles.

Obey all the local safety regulations.

This locating system is only a tool to assist the operator to locate the drill head. It is the operator not the Mag series locating system that is responsible for identifying the drill head location. Underground Magnetics is not responsible for any loss caused by using the Mag series. Users should operate the Mag according to the manual. If you have any questions, please contact Underground Magnetics.

## 2 Product highlights

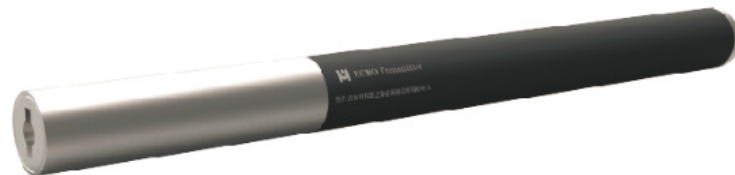
1. High precision and high anti-interference Faraday shield 3D antenna structure
2. Industrial gold-plated industrial rated electronic modules
3. High-performance DSP
4. 2 in 1 locating system, functioning as two locators independently tracking to provide better accuracy and reliability
5. up to 50m depth range, up to 200 hours continuous usage



## **3.Transmitter**

### **3.1 Introduction**

The transmitter provides drill head temperature, clock position, pitch, battery status and locating signal. The transmitter transmits signals at 19KHz or 30KHz. The transmitter will enter a “sleep” mode after 15 minutes without rotation. It takes about 10 seconds to “wake up” when the transmitter is rotated.



### **3.2 Specifications**

Echo 2

Frequency: 19KHz/30KHz

Depth range: 40m/40m

Power: 2C-cell batteries or lithium battery

Battery life: 12 hours or 48 hours

Roll: 1-12 clock position with half hour resolution

Pitch: 0.1% resolution

Temperature allowed: Under 85°C

Dimensions: 3.4cm (diameter) \*38cm (length)

Weight: 0.7kg

### **3.3 Digital Information**

Pitch: From -106% to +106% with 0.1% resolution

Roll: 1-12 clock position with half hour resolution

Battery: Battery full, 2/3 full, 1/3 full and flash warning

Temperature: When the transmitter is over heating, temperature indication in the receiver's display flashes. If temperature reaches over 85°C, transmitter may be permanently damaged. Temperature dot in the front of transmitter will turn black.

### **3.4 Transmitter Maintenance**

Do not place the transmitter near excessive temperature(over 85°C).

Do not apply excessive pressure, shock or vibration on the transmitter.

Take the battery out of the transmitter after use.

Clean the spring and cap on the battery compartment when necessary.

Regularly check the sealing ring on the battery cover. Replace it when necessary.

### **4.Battery and Charger**

Mag locators use alkaline C-cell batteries or lithium rechargeable batteries.

This lithium rechargeable battery comes with a special charger. Any use of other lithium rechargeable battery or charger for the receiver may cause fire, explosion, leaking or other damages. Keep the battery at the normal temperature of 15-25 degrees Celsius. Extreme high or low temperatures will short the battery life. Do not submerge the battery in water or any other liquids. Do not throw the battery into fire. Do not disassemble the battery. Avoid any kind of damage to the battery. Do not discard the battery as normal trash. Please dispose of it properly.

When charging the battery, red light of the charger is on. When charging complete, green light will be on. Please place the battery properly as shown in the diagram.

## **5.FCC Statement**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This product has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## **6.Warranty**

Underground Magnetics offers standard warranty on parts and labor of the Mag series locating system under normal usage. The warranty period is one year for the receiver and display and six months for the transmitter.