



USER'S MANUAL



Underground Magnetics

www.undergroundmagnetics.com

MAG series ►

Contents of 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. Receiver

3.1 Specifications

Mag 7

System receive frequency: 4k, 19k, 30k

Water proof: IP65

Telemetry: 915MHz operation range up to 1.2km

Rechargeable lithium battery: 12.5V

Battery life: up to 50 hours

Size: 68.5cm*13cm*30cm

Weight: 3kg



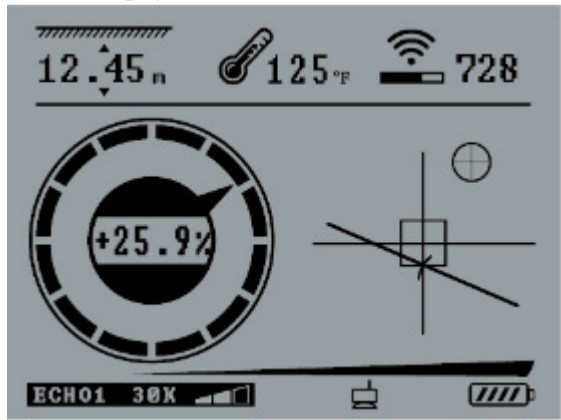
Mobile device, please keep away from at least 20cm distance when used.

3.2 Receiver Operation

-  Power key: Press and hold to turn on or off. Tap to turn back light on or off.
-  Up key: Move up to next cursor selection.
-  Down key: Move down to next cursor selection.
-  Confirm key: Confirm cursor selection.
-  Setup key: Tap to enter calibration page. Press and hold to enter setup page.

3.3 Icons

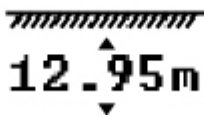
3.3.1Main page icon



ECHO1 30K   Transmitter model and frequency



Transmitter temperature



Distance between transmitter and receiver

+25.9%

Transmitter pitch



Transmitter battery status

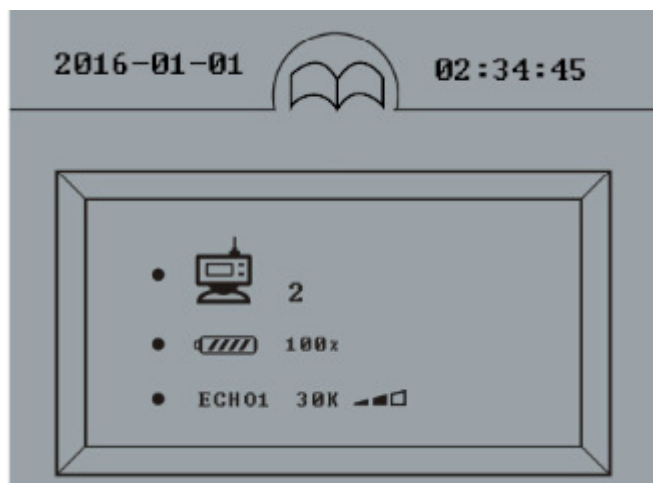


Receiver and display Connection



Transmitter signal strength

3.3.2 Deputy page icon



ECH01 30K [signal strength icon]

Transmitter model、frequency and power

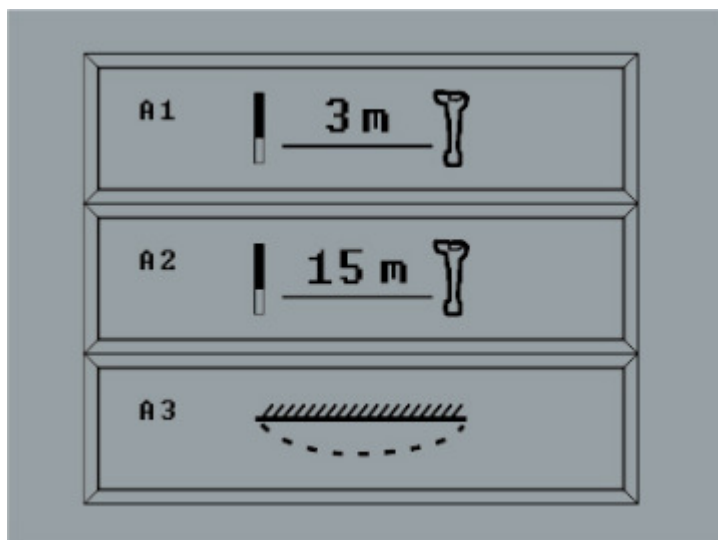


Receiver battery power



Telemetry channel

3.3.3 Calibration and depth forecast icon page

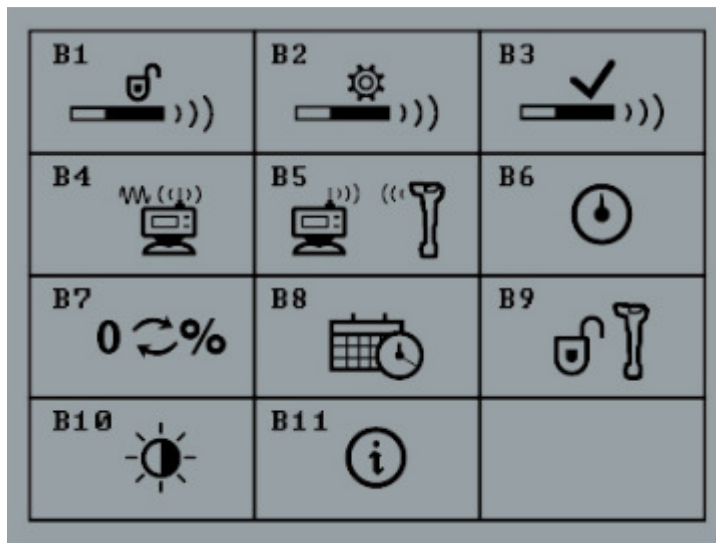


A1:3m calibration

A2:15m calibration

A3:Depth prediction

3.3.4 Setup page



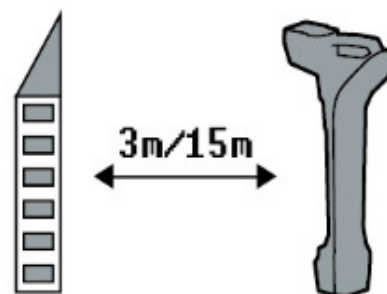
- B1: Transmitter activation
- B2: Transmitter settings
- B3: Transmitter selection
- B4: Telemetry selection
- B5: Receiver and display pairing
- B6: Roll calibration
- B7: Pitch unit selection
- B8: Time setting
- B9: System lock/unlock
- B10: Brightness control
- B11: System info

3.4 Mag7 calibration

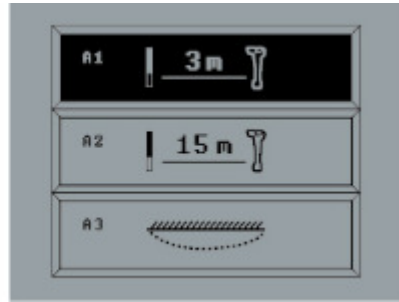
3.4.1 Depth calibration(3m and 15m)

Warning: Warning: Even if the transmitter's roll, pitch, battery status and temperature are displayed correctly, calibration may not be reliable due to a distorted magnetic field.

Directions as shown:

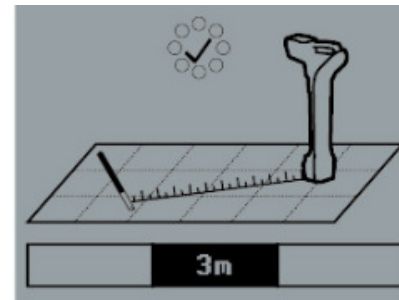
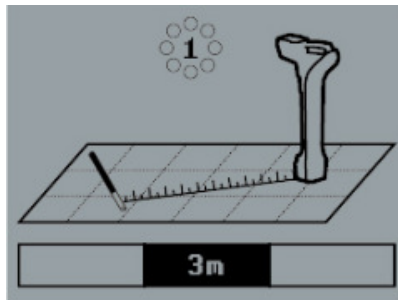


1. Make sure that transmitter is working properly. Place it in the housing.
2. Place housing containing the transmitter in a location away from interference.
3. Set transmitter 3m/15m apart as shown:



4. Tap  to enter calibration page

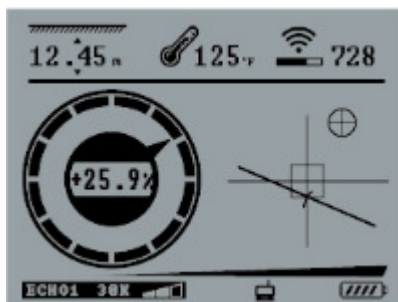
5. Tap  to choose 3m or 15m calibration.



6. Tap  two times to start 3m or 15m

7. Calibration complete.

Calibration and wait for calibration to complete

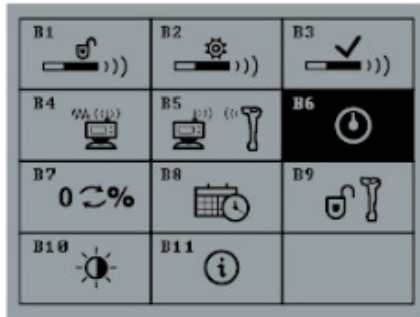


8. Tap  to return to main page.

3.4.2 Roll calibration

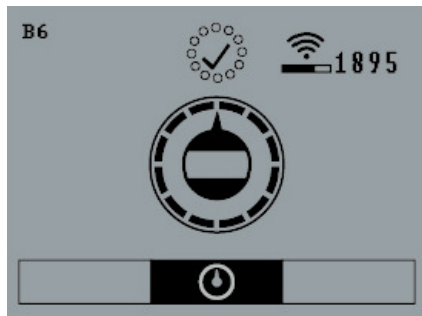


1. Place transmitter housing in a 12 o'clock position.

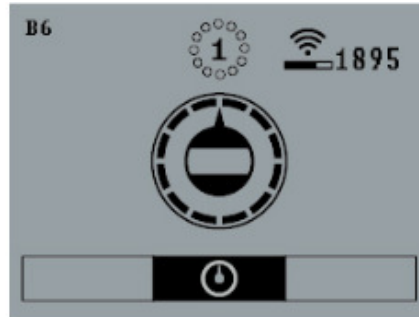


2. Tap  to enter calibration page.

Tap  choose roll calibration icon.

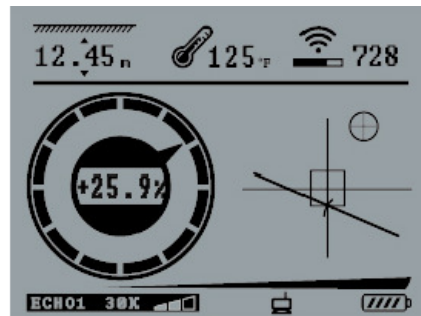


4. Calibration complete.



3. Tap  3 times to start roll calibration

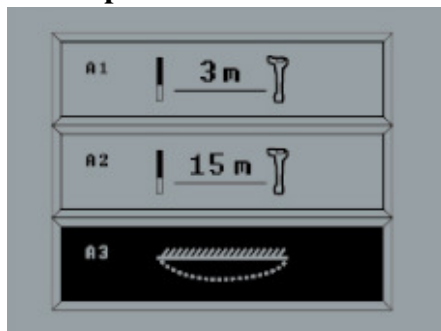
and wait for calibration to complete.



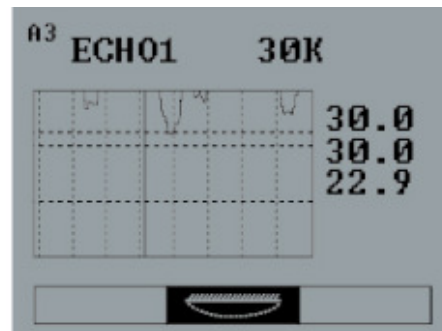
5. Tap  to return to main page.

3.5 Mag operation

3.5.1 Depth forecast

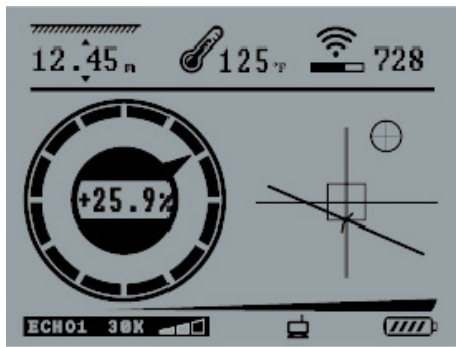


1. Tap  to enter calibration page.



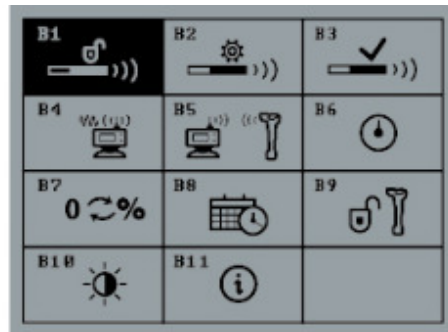
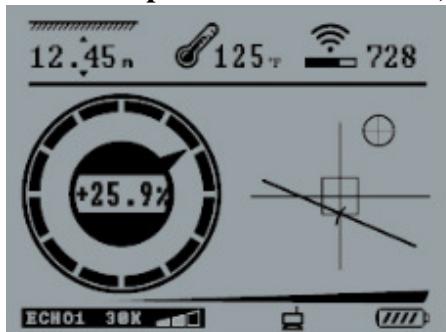
2. Tap  to enter depth prediction page.

(after frequency selection and calibration, the middle value is the depth forecast at the site)30m is the depth shown in the following diagram.



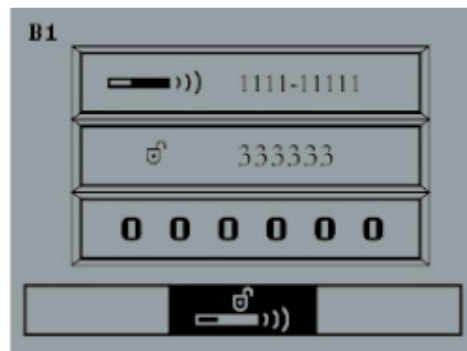
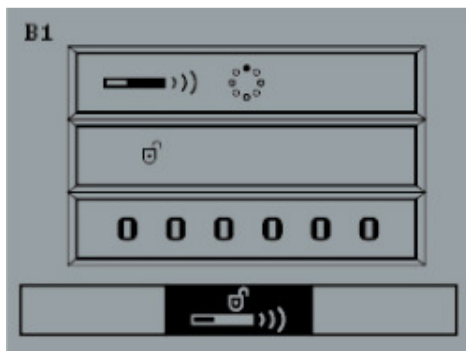
3. Tap  to return to main page.

3.5.2 Transmitter activation(must be started within 10 minutes after batteries have been placed in transmitter.)



1. hold  to enter settings page.

2. Tap  to choose transmitter activation icon.

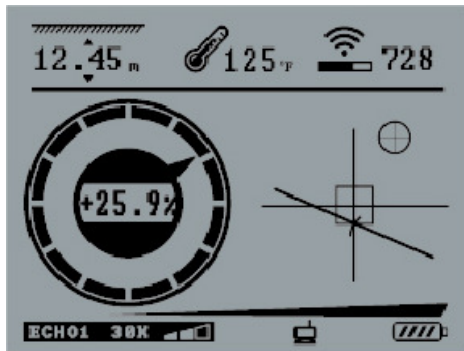


3. Tap  to enter B1 transmitter activation

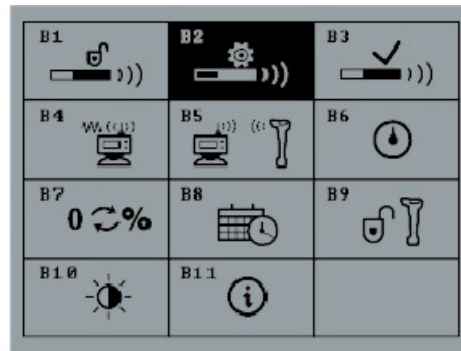
4. 1111-1111 is the transmitter identification number and 3333-3333 is the prompt code in the diagram. Send the transmitter identification number and the prompt code to the dealer. The dealer will give you an activation password. Use

 and  to input password, tap  to confirm activation.

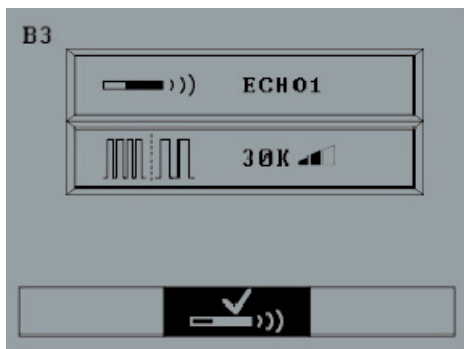
3.5.3 Transmitter setting(Must be started within 10 minutes after batteries have been placed in the transmitter)



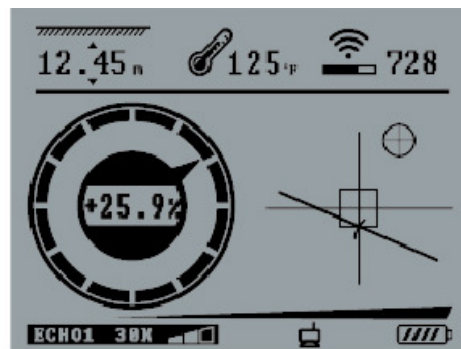
1. Hold  to enter settings page



2. Tap  to choose icon.

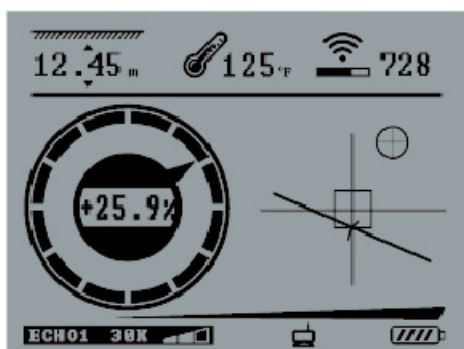


3. Tap  to enter transmitter settings page

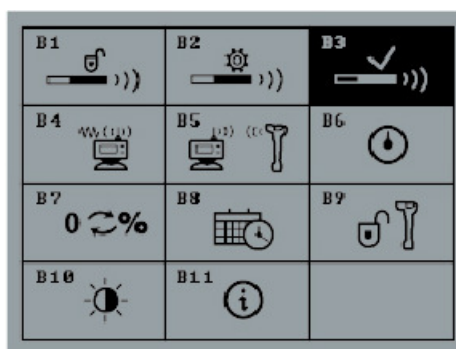


4. Tap  to return to main page.

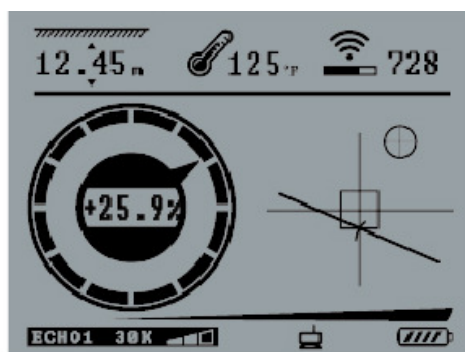
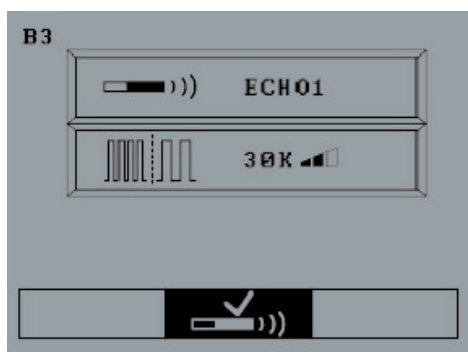
3.5.4 Transmitter selection



1. Hold  to enter setting page.



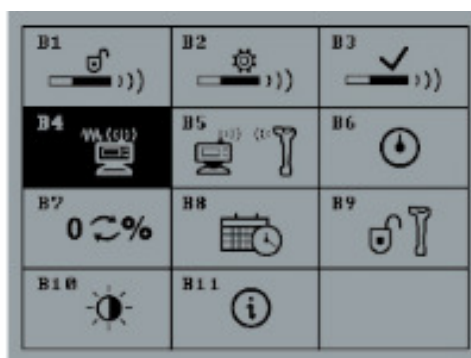
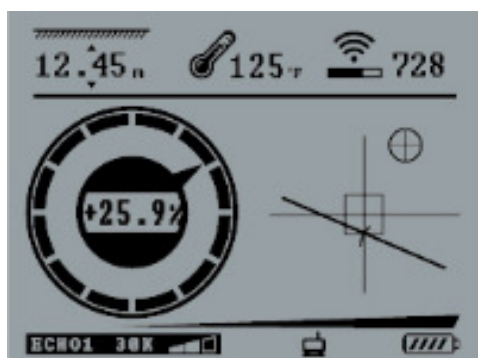
2. Tap  to select B3.



3. Tap to enter transmitter selection page. 4. Tap to return the main page.

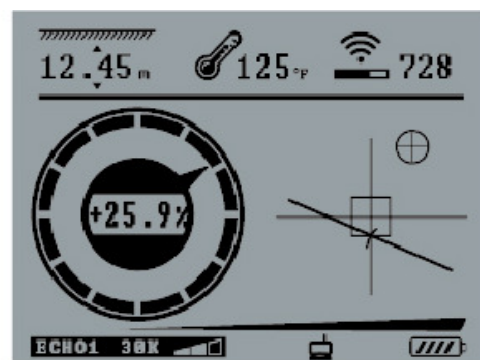
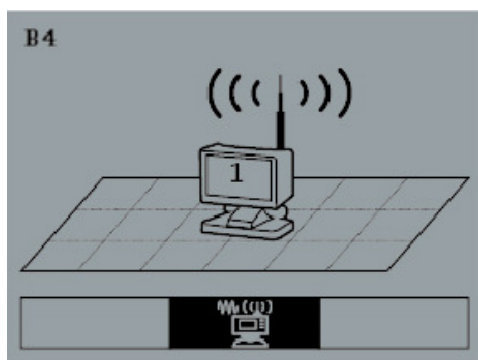
Tap or to select receiver model, frequency and power.

3.5.5 Radio channel selection



1. Hold to enter setup page.

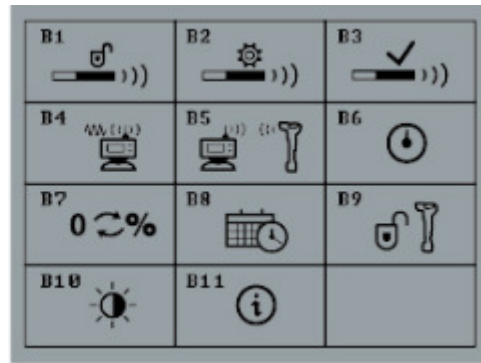
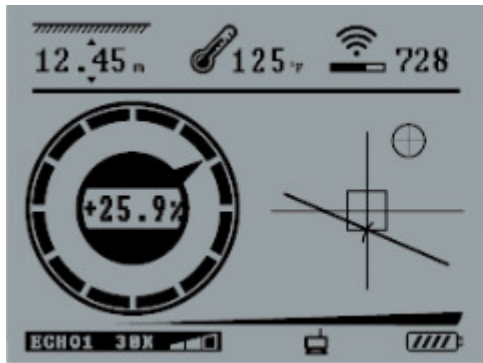
2. Tap to select B4 radio channel.



3. Tap to enter radio channel, and use 4. Tap to return to main page.

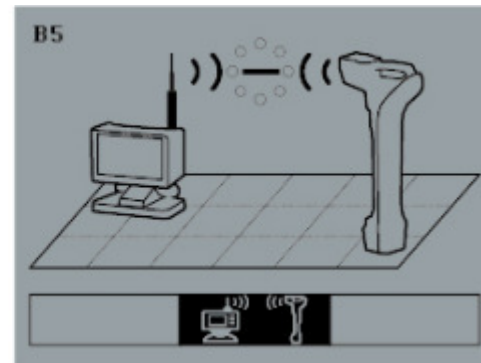
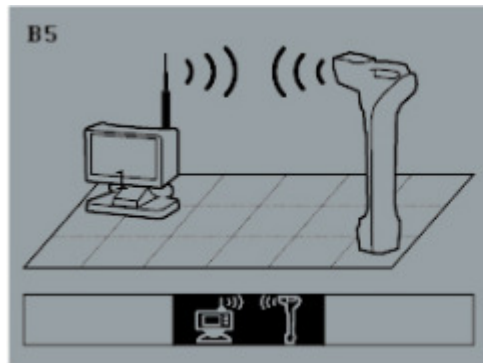
or to select radio channel.

3.5.6 Radio registration



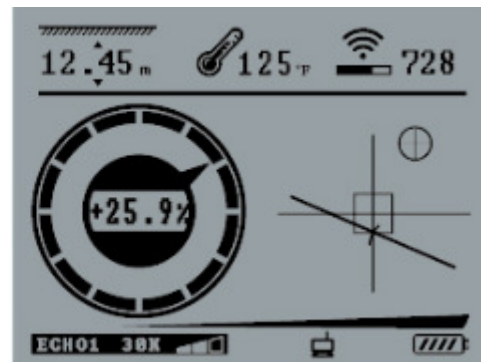
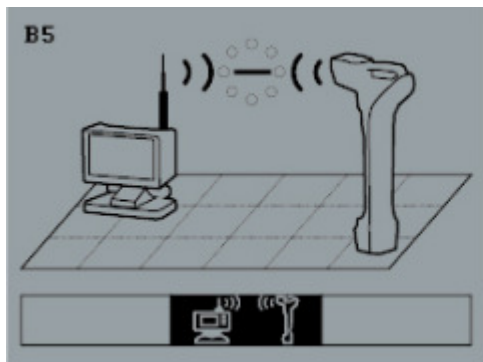
1. Hold to enter setup page.

2. Tap to select B5 radio registration



3. Tap to enter radio registration page.

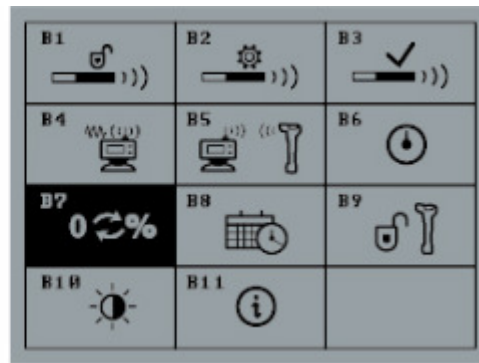
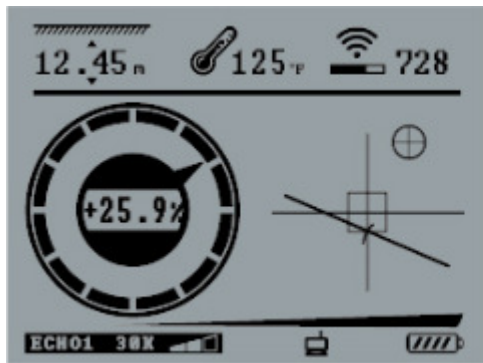
4. Tap 2 times to start radio registration.
(It is required that the following procedure is performed on the display at the same time.)



5. Radio registration complete

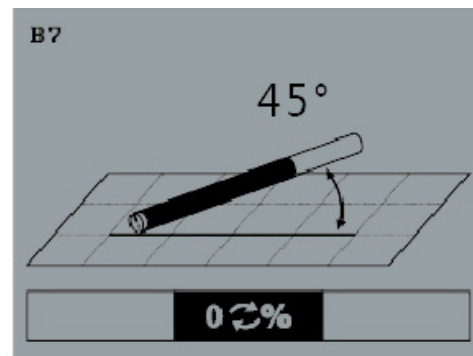
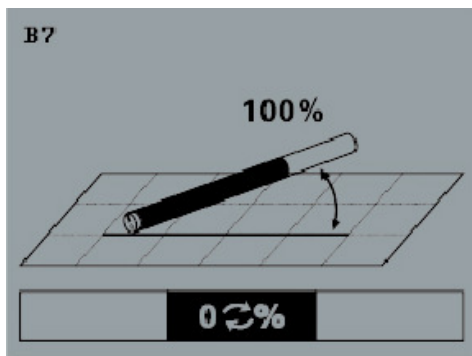
6. Tap to return to main page.

3.5.7 Pitch unit selection



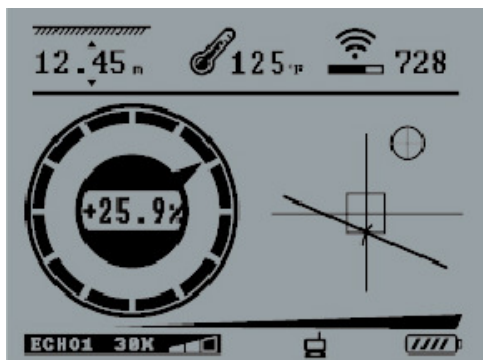
1. Hold  to enter the setup page.

2. Tap  to select B7



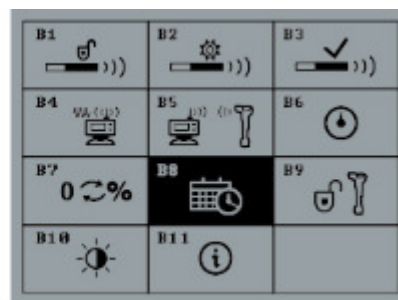
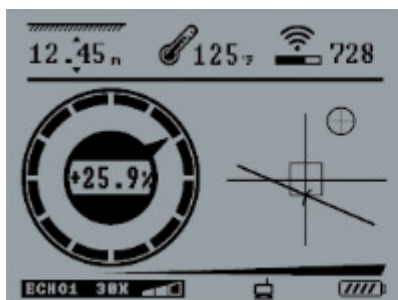
3. Tap  to enter B7 page.

4. Tap  to switch pitch mode



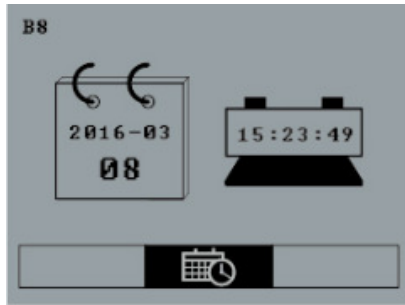
5. Tap  to return to the main page.

3.5.8 Time setting

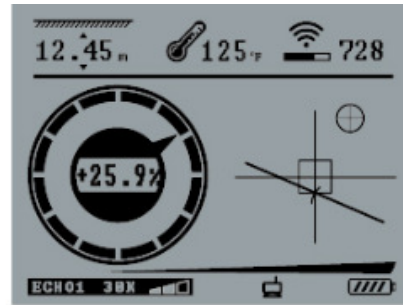


1. Hold  to enter setup pages

2. Tap  to select B8

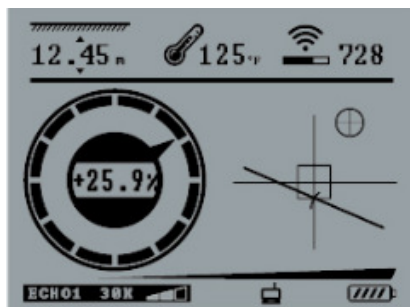


3. Tap ▲ or ▼ to set time

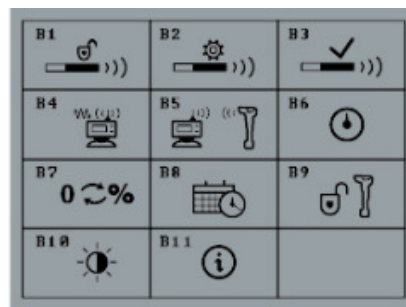


4. Tap ⚙️ to return to main page.

3.5.9 System unlock



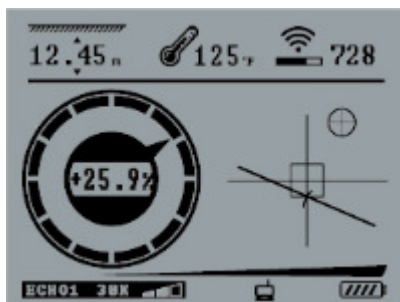
1. Hold ⚙️ to enter setup page.



2. Tap ▲ to select B9 icon.

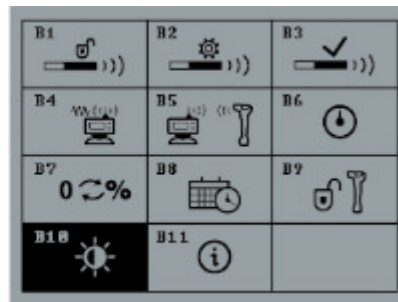
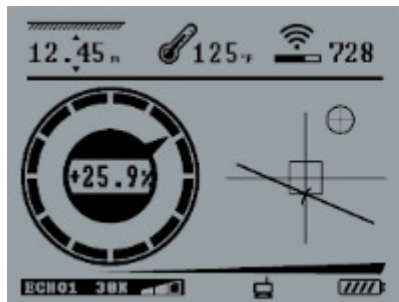


3. Tap ↵ to enter B9 system unlock page 4. Tap ▲ or ▼ and ↵ to input password
(to get the password please contact you dealer)

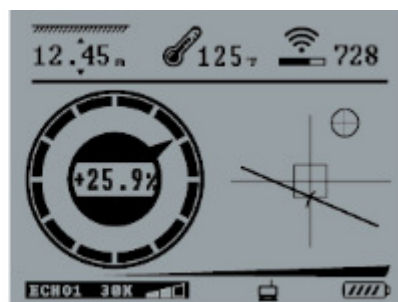
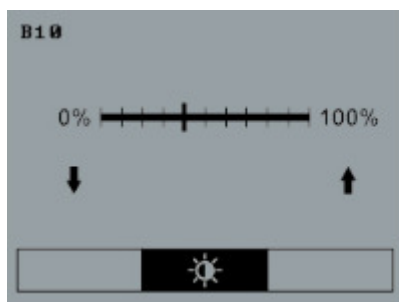


5. Tap ⚙️ to return to main page

3.5.10 Brightness adjust



1. Hold to enter setup page.
2. Tap to select B10



3. Tap to enter B10 and tap or
4. Tap to return to main page

To adjust brightness

3.6 Receiver maintenance

- a) The receiver uses rechargeable lithium batteries. The receiver will automatically shutoff if there is no key pressed over a time period of 20 minutes or if there is no information received from the transmitter. It is strongly recommended that the batteries are taken out of the receiver if not to be used for a long period of time to avoid potential erosion from a leaking battery.
- b) The receiver is an electronic measurement device. Severe shock and impact can damage the housing and the electronics inside the housing. Treat the receiver as a measurement device.
- c) Keep the receiver away from excessive heat to avoid damages to the plastic housing and electronics inside the housing.
- d) Do not submerge the receiver in excessive amounts of water.

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 Magnetix 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.

