

UNDERGROUND LOCATOR KIT

Technical Specification



Product Description:

Each Kit have the below components:

- 1- Active Underground Electronic Marker Locator (1+ Piece).
- 2- Stud Passive Underground Marker (at least 10+ pieces).
- 3- Ball Passive Underground Marker (at least 10+ pieces).
- 4- Android Software Application.

1- Active Underground Electronic Marker Locator:

The Active underground electronic marker locator is a special handheld instrument for detecting underground electronic marker. Powered by a high-performance 32-bit ARM-based processor, it samples data at over 3,000 readings per second, delivering rapid response times.

It also utilizes patented **Asynchronous Differential Measurement Technology** for distance measurement, ensuring accurate results even in environments with interference.

It can support two modes:

1- Analog mode (non-ID):

In Analog Mode, the **ND7000** can detect all electronic markers with standard frequencies, including gas (83/87 kHz), telecom (101.4 kHz), sanitary (121.6 kHz), water (145.7 kHz), power (169.8 kHz), general (66.35/133.3 kHz), and TV (77 kHz). This mode allows it to detect non-ID markers.

2- Digital mode (RFID):

In Digital Mode, the **ND 7000** is capable of detecting ID markers. Additionally, it can be paired with an optional Android app and cloud storage to manage identified data, facilitating the visual management of underground pipelines.

Main Features:

- i- Used together with underground electronic marker to form an underground pipeline electronic identification system;
- ii- In the digital mode, the preset ID number in the marker can be read. Through the cloud database associated with the ID number, more information of underground facilities can be obtained, such as site image, buried date, construction personnel, category of underground facilities (valves, joints...), Material and size of underground facilities, etc.
- iii- The ND-7000 can flexibly select RFID mode:
 - **Non-ID mode:** only detect the electromagnetic induction signal of underground electronic marker without RFID decoding. It has fast response speed and is compatible with underground electronic markers with the same frequency produced by different manufacturers, including ID or Non-ID markers;

- **Automatic mode:** in the default working state, only the induction signal of underground electronic marker is detected without real-time RFID decoding. Decoding will not be performed until the depth button is pressed.
- **RFID ON mode:** RFID decodes in real time and sends out prompt tone and signal strength information only when the ID marker is found. The response speed of the locator in this mode is slightly slower. Its advantage is that it can completely shield the influence of interference signal. As long as there is notification, it can confirm that the marker is found.

VI- It has an optional android app. In the installation stage of underground electronic marker, there is no need to carry the detector host. Only any mobile phone with Android can complete the input and upload of identification point information by scanning the bar code.

V- Support the satellite positioning handheld terminal with Android OS, and achieve the centimeter level positioning accuracy of identification points.

VI- Support cloud storage of identification information.

VII- Column antenna can support more accurate positioning.

Performance parameters:

- Material: ABS.
- Weight: 2.7~3.2kg (According to different antenna configurations).
- Frequency (customizable):
 - i- Power 169.8khz.
 - ii- Water 145.7 kHz.
 - iii- Sanitary 121.6 kHz.
 - vi- Telecom 101.4 kHz.
 - v- Gas 83 kHz.
 - vi- Cable TV 77 kHz or 87kHz.
 - vii- General 66.35 kHz or 133.3 kHz.
- Waterproof capacity: IP54.

2- Stud Passive Underground Marker:

It is used to supplement the identification of buried pipelines or underground facilities, or to supplement the identification of crossing pipelines that are inconvenient for ground excavation. For newly built underground facilities or pipelines with shallow burial depth, they can also be installed together with these underground facilities or pipelines.

It is designed and produced according to international standard frequencies, and is compatible with electronic marker locators designed and produced according to international standard frequencies (without ID mode). It can also be equipped with RFID

chips with two modulation modes, ASK and FSK, becoming electronic information markers. Through the ID number in the marker, ground detection personnel can clearly determine that what they have found is the target marker buried in advance, without suspecting whether it is an interference signal or a marker buried by other units. For ID markers, after obtaining the ID number, ground detection personnel can use the ID number to search for information related to the identified object stored in the cloud database (such as the type, specifications, and photos before covering with soil), which can achieve visual management of underground pipelines or facilities.

It equipped with FSK RFID chips, also supports writing simple information such as marker type and specifications directly into the internal chip of the marker. For remote areas with poor wireless signals, or for users who are unable to upload marked object information to the cloud due to information security factors, a more direct information management solution is provided.

Basic specification parameters:

- HDPE packaging, resistant to chemical corrosion
- Diameter: 20mm
- Length: 76mm
- Weight: 35g ± 10%
- Waterproof and dustproof: IP68
- Drop test: it can withstand the drop from 5feet (1.5 m) to the concrete floor
- Working frequency (customizable):
 - Power 169.8khz
 - Water 145.7 kHz
 - Sanitary 121.6 kHz
 - Telecom 101.4 kHz
 - Gas 83 kHz
 - General 66.35 kHz

3- Ball Passive Underground Marker:

The induction coil of the Ball series spherical marker is suspended on the antifreeze inside the sphere. No matter how the sphere rolls, the induction coil can Keep horizontal and upward, providing perfect positioning accuracy. There is no need to consider the posture of the sphere during installation, which reduces the difficulty of installation.

The Ball marker is designed and produced according to international standard frequencies, and is compatible with electronic marker locators designed and produced according to international standard frequencies (without ID mode). It can also be

equipped with RFID chips with two modulation modes, ASK and FSK, becoming electronic information markers. Through the ID number in the marker, ground detection personnel can clearly determine that what they have found is the target marker buried in advance, without suspecting whether it is an interference signal or a marker buried by other units. For ID markers, after obtaining the ID number, ground detection personnel can use the ID number to search for information related to the identified object stored in the cloud database (such as the type, specifications, and photos before covering with soil), which can achieve visual management of underground pipelines or facilities.

The Ball marker, equipped with FSK RFID chips, also supports writing simple information such as marker type and specifications directly into the internal chip of the sphere. For remote areas with poor wireless signals, or for users who are unable to upload marked object information to the cloud due to information security factors, a more direct information management solution is provided.

Basic specification parameters:

- physical characteristics
 - Shell: HDPE
 - Weight: 360g ±5%
 - Case diameter - 4.7in (120mm)
- Environmental characteristics
 - Drop test: it can withstand the drop from 5feet (1.5 m) to the concrete floor
 - Waterproof and dustproof: IP68
 - Compression capacity: after bearing 4kN axial pressure (uniform pressure), the product has no permanent damage, crack and leakage, and its electronic function has no damage
- Frequency (customizable) :
 - Power 169.8khz
 - Water 145.7 kHz
 - Sanitary 121.6 kHz
 - Telecom 101.4 kHz
 - Gas 83 kHz
 - General 66.35 kHz

4- Android software applications:

After connecting Android App through Bluetooth, all operating functions of the locator are taken over by app

By querying the identification point through the map, you can select Google map to navigate to the selected identification point.

Main Applications:

Locate and identify various underground facilities, including but not limited to:

- Pipeline path.
- Nonmetallic pipe.
- Various valves.
- Depth change.
- Pressure reducing device.
- Pressure control point.
- Embedded reserved port.
- Pipe diameter change.
- Water well.
- Maintenance point.