

The Beacon Tracker is a two solenoid AC system for tracking the directional drilling of cable and pipeline boreholes under rivers, buildings, highways, etc.

The precise drill bit location and drilling direction are measured with 300ft/100m range.



Benefits

- Can be used without a surface guidewire
- Can be used to complement existing guidance methods
- When installed at the edge of a water source, will give guidance information up to 100 meters offshore
- Can be installed inside buildings while drilling underneath
- Has assisted the establishment of the Initial Line Azimuth for drilling away from an entry guidewire
- Has positively guided large 110 degree curves
- Has guided entire crossings without use of a surface cable
- Has benchmarked crossings under golf courses
- Determines drilling positions under buildings

Wire wound steel core solenoids mounted on a two degree of freedom table. The table doubles as a transport case holding the electronics, table legs and controls.

A 12 vDC deep discharge battery can handle an all day operation and recharge in the evenings.

The solenoid stack is installed on or offset to the centerline. It is oriented to a known azimuth, normally the line azimuth, and leveled using bubble levels provided.

Remote actuation of the AC Beacon is accomplished from the laptop keyboard by clicking a button on the software screen causing a tone to be generated through a radio left at the ac solenoid location.

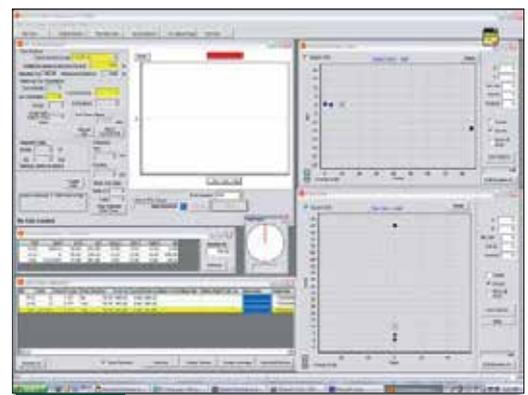
After actuation, data is saved on the main ParaTrack-2 screen and the tracking algorithm used to determine elevation, left/right position and a confirmed away distance from entry.

To date, the AC Beacon has been used more than a 100 meters offshore where normal coil layout is impossible. The Beacon has been

deployed on golf courses where unsightly surface cables were prohibited. We have mobilized the AC Beacon in order to locate the drilling path accurately before crossing the exit side coastline to ensure accuracy and limit the real possibility of damage.

Outfalls are a major planned use of the AC Beacon where surface wires are difficult to install in the surf zone and inaccurate where unseen.

In conjunction with other tracking methods, the AC Beacon will assist long reach intercept drilling by ensuring the two approaching bores are within tolerance of each other to ensure no pullbacks.



Reading on screen

Operation guide

1. Hand carry the support stand, the solenoids and the battery shown to a surveyed surface location.
2. Adjust the telescoping legs to level the solenoids.
3. Rotate the solenoids to a surveyed direction using the telescope and freely rotating solenoid table included in the support stand.
4. Start a survey manually at the solenoid site or with a telephone touch tone transmitted by a walkie talkie.
5. The left/right, away and elevation coordinates of the drill bit and the azimuth of drilling are computed and displayed 20 seconds after the start of a survey. The magnetic fields of the beacon are measured with a steering tool near the bit.



Specifications

- Solenoid length: 49 inches (2 per system)
- Solenoid weight: 62 lbs. (2 per system)
- Input voltage: 12 vDC, 7 Amps (typical small automotive type battery)
- Excitation frequency: between 2 and 3 Hz.
- Compass interference: none
- Radio interference: N/A
- FCC regulation: N/A
- Maximum Range: 100 meters
- Precision: Away, Elevation and Right +/- 2% of BTS to Probe distance
- Drilling Azimuth Determination (relative to solenoid axis) : +/- 1°
- Remote or manual activation Survey time: 20 seconds
- Temperature Rating: 85°C (185°F)
- Pressure Rating: 1200 bar (17400 psi)
- Sensor Accuracy:**
 - Inclination: ± 0.1°
 - Azimuth: ± 0.3°
 - Tool face: ± 0.5°
 - Length: 1245 mm (49")
- Maximum Wire line Length: 5000 meters (16000 ft)