

BA-100

Datasheet



Borehole antennas are used to extend the amount of information one can get from a drilled borehole. By collecting GPR data with a borehole antenna one can observe and interpret the obtained data showing the media around the borehole at a certain depth.

BA-100 is a borehole antenna for applications requiring access to the features via a nearby borehole. In addition to the higher penetration and clean signal, the size of BA-100 is much smaller than any other competitors' products with the similar specifications. It is an ideal tool for companies surveying marble quarries, salt mines or any other application requiring borehole antennas with lower frequency operating bandwidth.

BA-100 borehole antenna works with a lower center frequency and frequency bandwidth which allows for excellent penetration of the signal and a reasonable resolution.

The dimensions of the antenna where made industry friendly, meaning that after you get the standard drilling tool out you can easily push the antenna in the hole. GPR information gathered in this way will reduce the overall number of holes needed for the final report, providing much more information than just drilling.

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Area of Application

- Tunneling
- Mining
- Borehole surveys in general



Mechanical and Environmental Specifications

| | |
|------------------------|--|
| Dimensions LxWxD | Ø38x1683 mm / Ø1.5x66.26 inches |
| Weight | 2.1 kg / 4.63 pounds |
| Fastening points LxW | GTP-901 tripod |
| Ingress Protection | IP68 |
| Operating Temperature* | from -25 up to +40 / from 14 up to 104 |

*Antenna only, for the electronics refer to the appropriate datasheet.

Electrical Specifications

| | |
|--------------------------------|-------------------|
| Antenna Type | Bowtie |
| Shield Type | Unshielded |
| Distance between the TX and RX | N/A |
| Feed point impedance | 296 Ohms |
| Transmitted Pulse Amplitude | 98 Volts |
| Receiver Sensitivity | 14 µVolts |
| Dynamic Range | 136.9 dB |
| Antenna Bandwidth | 128% at 10dB |
| Antenna Center frequency | 119.5 MHz at 10dB |
| Survey Wheel Output Voltage | 5.01 Volts |

Recommended Specifications

| | |
|-------------------------------------|---------------------|
| Pulse repetition Frequency, PRF | ≤50 kHz |
| Scan Rate | 100 Traces/Second |
| Range (depends on soil penetration) | 50-350 ns |
| Low Pass Filter Cut-Off Frequency | 200 MHz |
| High Pass Filter Cut-Off Frequency | 50 MHz |
| Gain | Adjust to 75% Swing |

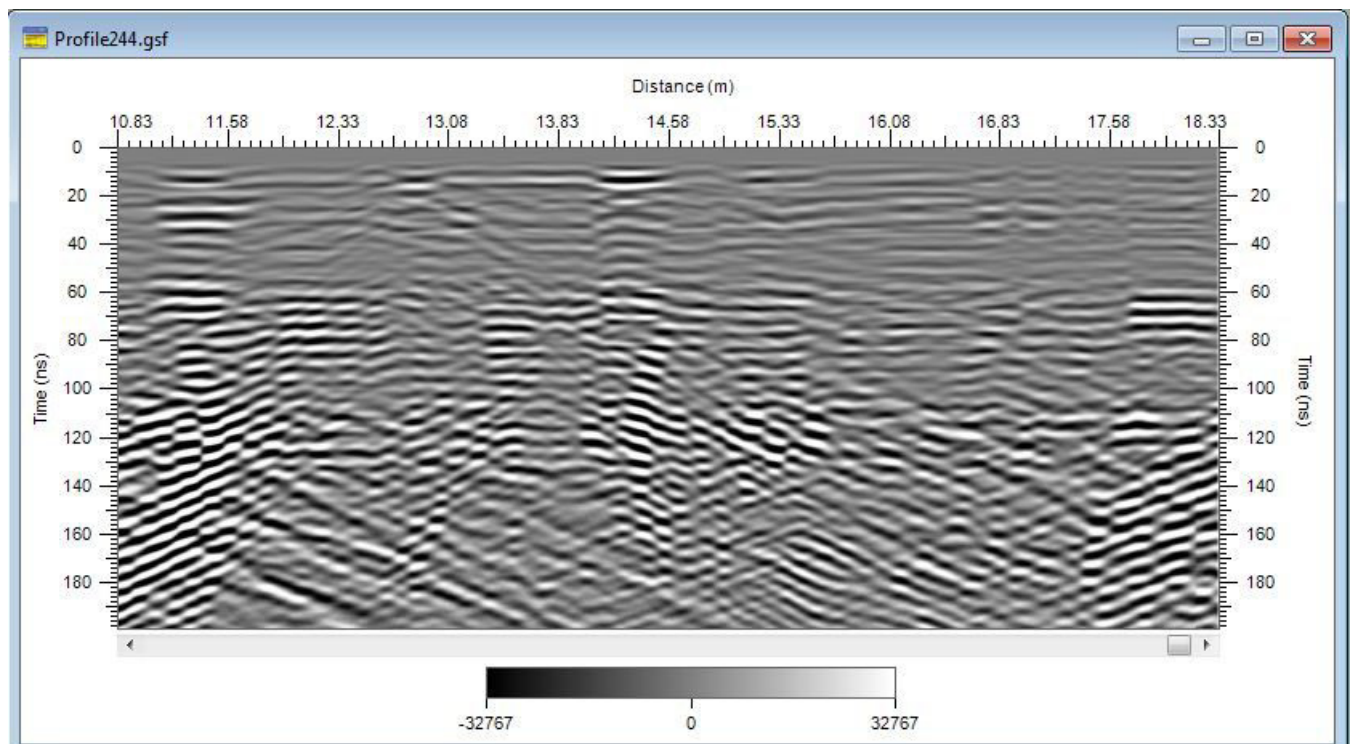
Accessories*

- GTP-901 - Survey Tripod
- ECU-902 - Survey Wheel Encoder

*Accessories are not included

Surveys with borehole antennas are some of the harder GPR survey types to conduct and interpret. One of the main reasons for the difficulty is that borehole antennas are unshielded and non-directive antennas. The resulting data from a single borehole is in fact gathered from the 360 degree plane around the borehole rather than a specific direction. This allows for an object to be determined by the distance the antenna is lowered to and the radius showing the distance of the object from the borehole with no regard to the azimuth. This can also create interesting and slightly misleading reflection patterns from two or more objects at the same radius and different azimuth from the borehole, merging as one in the data.

One way of circumventing the mentioned problem is to collect data from the same area from different boreholes using the same antenna. This will allow to triangulate the true position of the object in the post processing phase. Another suggestion is to use two antennas; one as a transmitter and the other one as a receiver. The antennas must be used in different boreholes, creating a true tomography image of the area.



1. Borehole data collected with the BA-100 antenna.

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