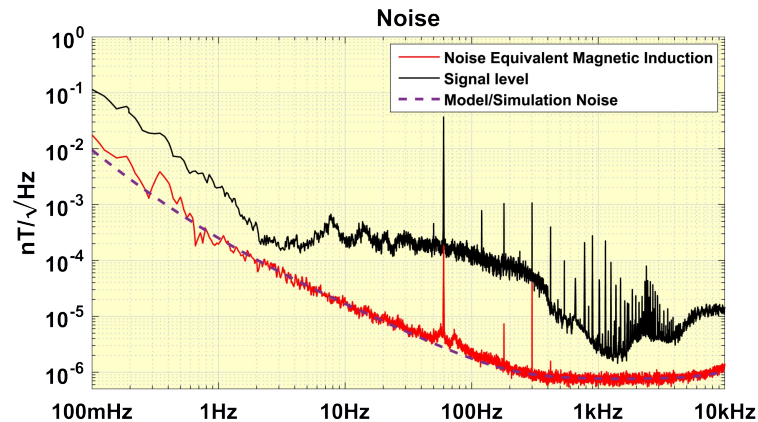
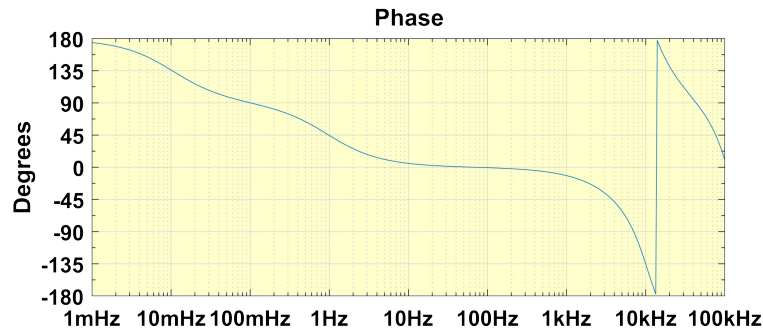
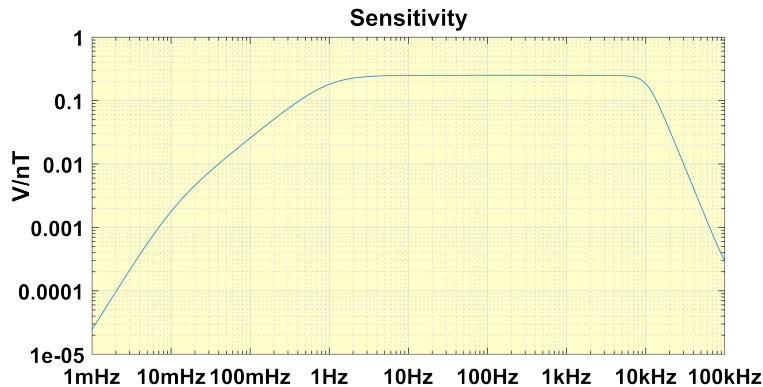




Ant 6 Induction Magnetometer



The ANT/6 magnetic field sensors are extremely low noise instruments designed to withstand the difficult conditions encountered in the field environment. By utilizing high-permeability cores and transformer coupled feedback the Ant 6 has a very flat and stable transfer function across a wide bandwidth. The ANT/6 is a multipurpose coil with extremely low noise levels from 0.1 Hz to 10 KHz, making it an excellent choice for AMT and Controlled Source Audiofrequency Magnetotelluric investigations (CSAMT/AMT).

Optimal Frequency Range	0.1Hz to 10kHz
Length	919mm / 37.75"
Weight	3kg / 6.7lbs
High Pass Corner Frequency	1Hz
Low Pass Corner Frequency	10 kHz, 3 pole
Sensitivity	250mV/nT
Noise at 1Hz	240fT/√Hz
Power Supply	3X 9V batteries
Power Supply Current	5.6mA
Standard Connector	PT02A-4-8S

Zonge Headquarters: 3475 N Dodge Blvd,
 Tucson, AZ 85716 USA
 Tel: (520) 327 5501
 (800) 523 9913
 Email zonge@zonge.com
 Web: <http://www.zonge.com>
 Fax: (520) 325 1588



Ant 6 Operating Instructions

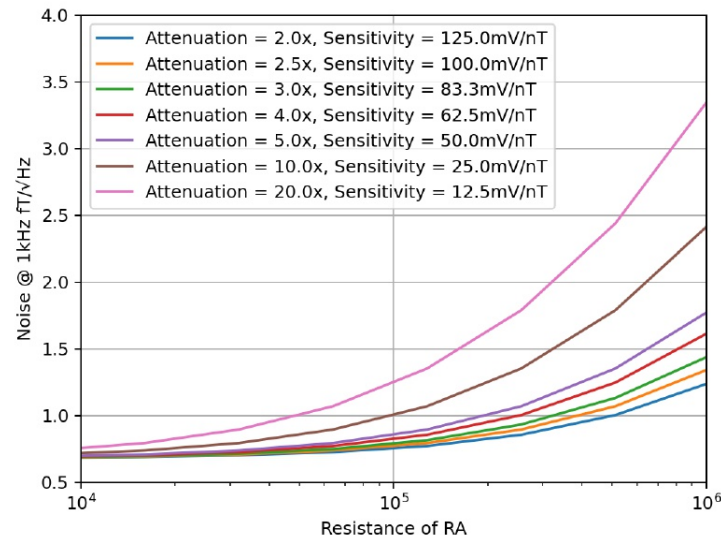
On - Off Switch

Moving the switch towards the center of the antenna turns the antenna on. Moving the the switch in the opposite/momentary position activates the battery test circuit. The light turning on means the antenna should continue to operate for at least several more hours. If the light turns off after holding the switch in the battery test position for a few seconds it means the batteries are nearly depleted and should be changed.

Output

The Ant 6 features a differential output and is determined by the supply voltage. The supply voltage is split in the middle to create a positive and negative rail. Each of the two outputs can swing from the positive rail minus 1.5V to the negative power rail + 1.5V. With full 9V batteries this equates to +/-12.5V or 25pp. The differential signal is then +/-25V or 50Vpp. This voltage level is often impractical and a simple voltage divider as shown in the circuit to the right can be used to attenuate the output. There is 49.9 ohms in series with each phase of the output.

It is possible for the voltage divider to increase the noise floor of the magnetometer if the resistors in the voltage divider are too large. The magnetometer is most sensitive to this where the noise is lowest, around 1kHz. Refer to the plot below to see what effect a voltage divider will have on the noise level at different attenuation values for different values of RA. Values below 5kohm are not recommended as it will lead to excessive power consumption. Does not take into account ADC noise.



Polarity

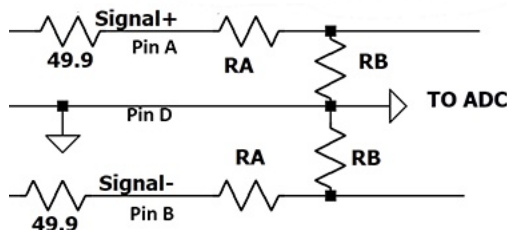


The battery/box end of the antenna is negative and the other end is positive, if we align the positive end with B field direction, the measured voltage signal is in phase with the B field. If we align the negative end with B field direction, the measured voltage signal is out of phase

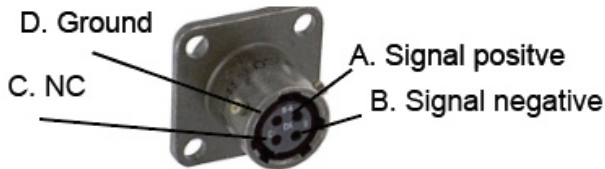
Overload circuit

Older Ant 6s, built prior to 2024, feature an overload circuit. When the output signal is near enough to the supply rail as to compromise the data quality a speaker will activate and the battery test light will turn on. This feature has been discontinued for new Ant 6s.

$$V_{out} = \frac{RB}{RA + RB + 49.9} \times \frac{250mV}{nT}$$



Connector Pin out



Older Ant 6s may have a Trompeter BJ 30 on them



Male pin. Signal negative
Female pin. Signal
Body. Ground

Zonge Headquarters: 3475 N Dodge Blvd,
Tucson, AZ 85716 USA
Tel: (520) 327 5501
(800) 523 9913
Email zonge@zonge.com
Web: <http://www.zonge.com>
Fax: (520) 325 1588