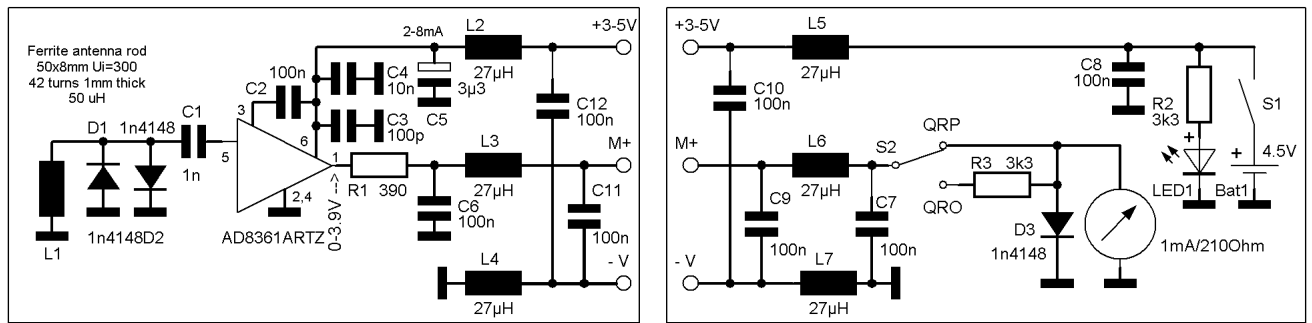


Magnetic Field Strength Indicator.

pa0nhc 20171220

pa0nhc Magnetic near field indicator 20170714



Schema description.

Antenna coil L1 (self inductance 50-100uH) is severely damped by the low input impedance of IC1 (225 Ohms), making it wide band..

D1 and D2 limit to strong signals to 1.4Vpp, preventing overloading of the IC.

The IC is an "RMS detector", capable of detecting voltages as low as 10mVrms, and operates with a supply voltage as low as 3Vdc.

It converts the antenna RF voltage into a proportional DC voltage, with a conversion factor of 7.5Vdc/Vrms, from nearly DC to 2.5 Ghz.

The maximal output voltage of IC1 in this circuit is 3.9V. Maximal output current of IC1 is 10 mA. The value of R3 depends on the meter characteristics. The correct value of R3 sets it then for Full Scale Deflection.

After that, with S2 in position "QRO", and transmitting with full power, the meter should indicate abt. full scale. This should be accomplished by determining the correct distance between sense antenna unit, and the **center of the lower loop radiator part.**

See drawing. D3 protects the meter for over voltage.

With S2 in position "QRP", the sensitivity of the system becomes abt. 5 times higher. Then the antenna could be tuned using only 1/25 of full power (5W). Thereby causing no damage to the own transceiver, and if tuned to "zero beat", causing no hinder to other stations.

Using a 1 mA meter, the max. supply current is abt. 8 mA.

Using a 10 mA meter, the max. supply current is abt. 18 mA. The dissipation of the IC then is abt. 80 mW. Safe values.

Pi-filters L2-7 / C5-12 prevent influence of possible induced RF voltages onto the twisted 3-pole connecting cable.

