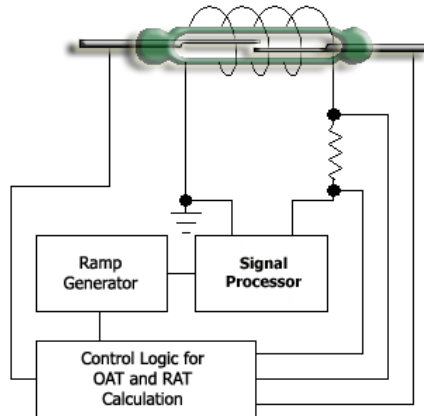


Measurements

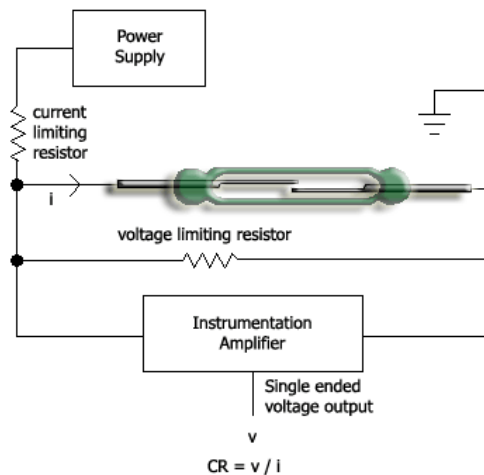
When taking measurements, care should be taken that the test coil and the reed switch are vertical, or if horizontal, only in an east-west direction, to null the earth's magnetic field. The crocodile clips used for connections should not be made of Ferromagnetic material. All measurements should be taken with Kelvin 4-terminal measurement method. Prior to AT measurements, the coil should be saturated by applying a voltage equivalent to about 200AT for a few milli-seconds.

The current in the coil is then increased to the point where the reed switch operates, and then multiplied by the number of turns in the coil to give operate AT. Contact resistance is measured across the contacts by forcing 10 mA test current and 100 mV, after giving 10% AT more than the operate AT, which is known as over-drive AT. Release AT is measured by decreasing the coil current from the over-drive AT. Dynamic contact resistance is measured up to the switching frequency limit. All the measurements are carried out for 10 cycles.

A simple arrangement to measure the OAT, RAT and CR for the reed switches is given below.



Operate AT and release AT are calculated by measuring the voltage developed across a reference resistor, finding out the current through it, and multiplying the value by the number of turns of the test coil. Suitable compensations may be incorporated to cancel out the earth's magnetic field. The test coil may be of 5000 or 10000 turns to minimize positional errors. CR can be measured by driving a suitable test current through the reed switch and measuring the voltage developed across the reed switch. The measured voltage upon the forced current will give the CR in ohms. The test current is usually small so that no damage occurs to the reed switch and is few tenths of the rated carry current. Constant current sources should be used with care and the open voltage must be very small. Any capacitance in the driving line will destroy the contacts.



Please contact us for more information

www.reed-sensor.com

10 January 2005