



# SHACKNEWS

## HIGHVELD AMATEUR RADIO CLUB

APRIL 2011

### COMMUNICATION IS THE NAME OF THE GAME

**Meeting** Due to the SARL AGM there was no formal meeting this month. Two members from the club went along to participate in the proceedings.

The club held an antenna information and building day at the QTH of ZS6REX on Sunday 10 April.

There were 25 persons present including wives. Thanks to Frank, ZS6TMV and Sid, ZS6GQ for their efforts in building and demonstrating a G5RV and a folded dipole using open wire construction. Further info on the types built can be found at [www.instantladderline.co.za](http://www.instantladderline.co.za).

The next event to take place is the Hobbytech exhibition in Benoni which is on the weekend 14&15 May.

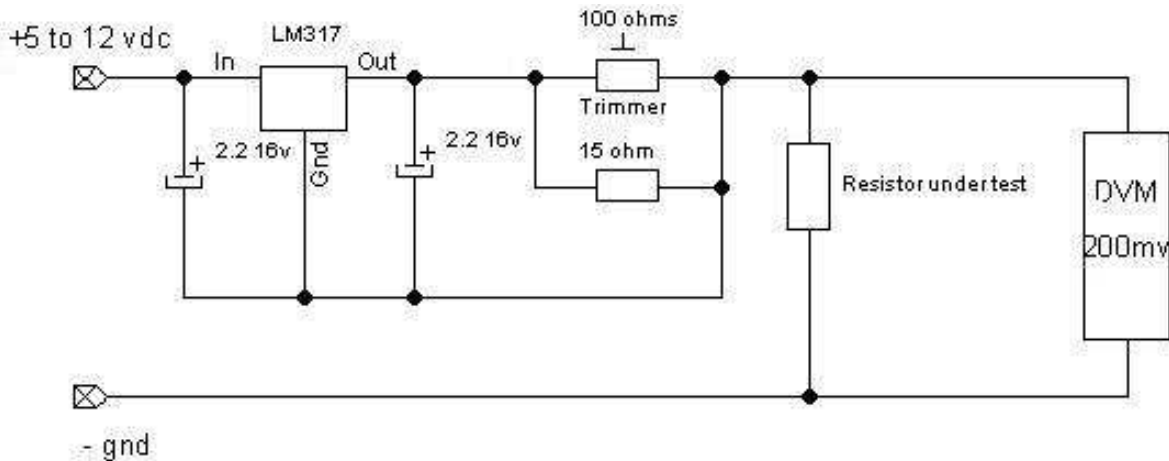
The format will be the same as last year. We will need some goodies to make up a decent display of our hobby

Some pictures taken at the antenna building day. Thanks to Bryan ZS1NQ for submitting them and thanks to Vince ZS6VIN for the use of the gazebo



There was no ZS6SSC meeting this month

## A milliohm adapter for you DMM



The lowest resistance scale on most DMMs is 200 ohms, allowing resolution of 0.1 ohms maximum. This is adequate for many purposes, but there are times when lower value resistances simply must be measured, and measured with greater resolution.

The milliohm adapter has two basic resistance ranges of 2.000 ohms full scale and 20.00 ohms full scale. The lower range results in a maximum resolution of 0.001 ohms, or 1 milliohm per digit of display on a 3 1/2 digit DMM. Thus the name of **milliohm adapter**.

The LM317 is operated in a constant current mode at 100 mA, set by the 15-ohm resistor paralleled with the 100-ohm trim pot. The two 2.2 MFD caps assure stability of the LM317. The circuit applies exactly 100 mA to the resistor under test, thus producing a voltage directly proportional to the value of the resistor. The DMM then displays the resistance as a voltage. A voltage reading of 100.0 millivolts equates to a resistance of 1.000 ohms. Note that this is a four wire system, assuring none of the 100 mA current flows thru the leads to the DMM and thereby eliminating any affects of the test leads on the measurement.

There is nothing critical or fussy about the layout, just keep the 2.2 $\mu$ F tantalum caps lead short and close to the pins of the LM317. Install the LM317. Note the polarity of the tantalum caps and install them correctly. Add the 15 ohm resistor and the 100 ohm trim pot to complete mounting of the components.

Make a set of test leads by twisting together two 20cm pieces of red wire, and soldering them together at one end only. You should have a 20cm, twisted test lead connected at one end only. Repeat that with two pieces of black wire for the second test lead.

### Calibration

Apply power from a 5- to 12-VDC source. There should be no current flow from the power supply at this point. Make sure that the supply positive voltage appears at the end of the red test lead, and that the black lead is at ground potential. Adjust the 100-ohm trim pot for a mid-range position. Set your DMM on the 200 mA current range, and connect it between the ends of the red and black test leads. The DMM should show about 100 mA of current. Calibrate the unit by adjusting the 100-ohm trim pot for a current of exactly 100.0 mA on the DMM. Note that best accuracy will be obtained if the unit is calibrated with the power supply to be used in normal operation. Disconnect everything from the milliohm adapter.

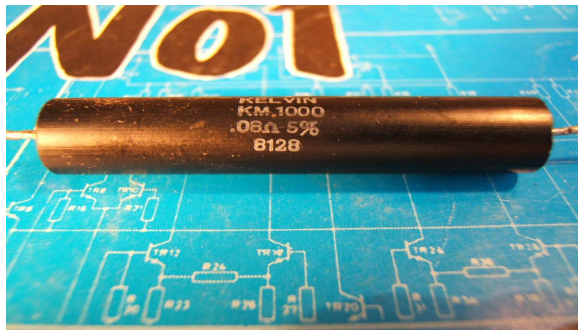
Plug the instrument into the DMM jacks and set the DMM for 200 millivolts full scale. Apply power, and the DMM should show an overflow. Next short the two test leads together directly at the solder joints (do not use clips or connectors on the test leads for this test), and the DMM should read 000.0 or 000.1 If the reading is more than 000.2, find the problem and correct it before proceeding.

Recheck that the current through the test leads measures exactly 100.0 mA with the mA meter connected between the red and black test leads. Attach test clips to the red and black test leads. Short them together and read the DMM on the 200 millivolt scale. Your DMM will now most likely read a small voltage. That is the resistance of your test clips and a measure of their connection quality. Wiggle the test clips for a better connection, if possible. The instrument is now ready to be mounted in a container and put to use.

In use

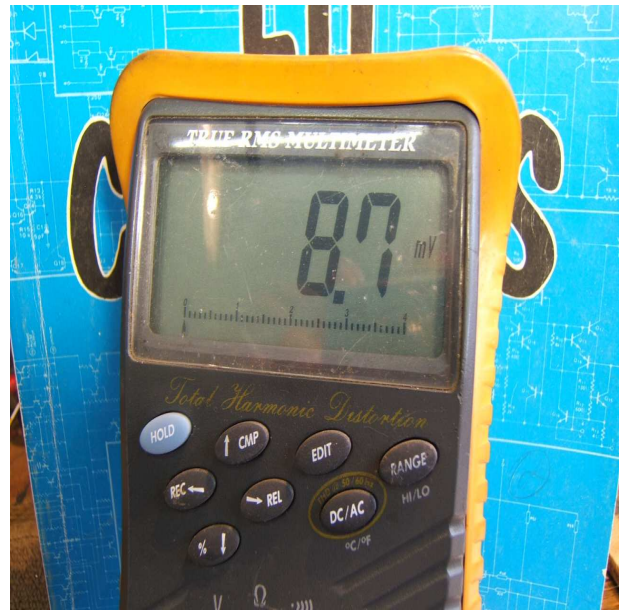
Plug in the adapter, set the DMM to 200 millivolt range, apply adapter power, and make measurements! Note that this is a 4-wire instrument, and that for proper operation there should always be four wires directly to each resistance being measured-any other arrangement will cause errors.

The test leads as recommended will assure proper operation. Also note that this unit actually measures voltage, therefore all power must be removed from the resistance being measured.



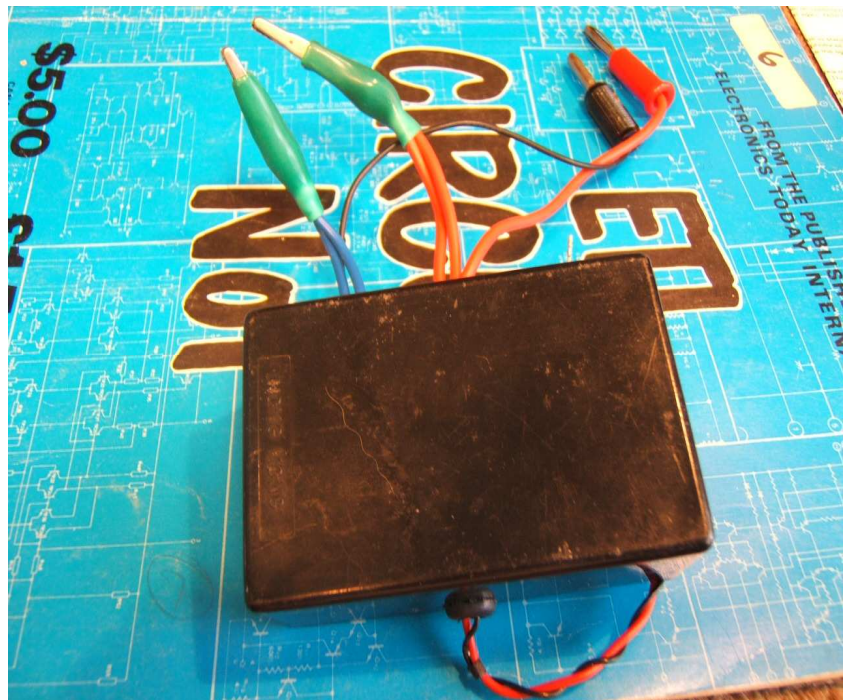
A 0.08ohm resistor being tested.

The result being displayed on a DMM set to the mV scale



What my completed unit looks like.

The croc clips are for the device being measured.  
The two banana plugs go to the DMM and the red/black leads at the bottom are for the power eg. 9 v from a battery



Examples of other devices

### Switch contacts

- Slide 0.055 to >20
- Micro 0.011 to 0.030
- Micro 0.024 to 0.100
- Toggle 0.009 to 0.0211
- Toggle 0.008 to 0.0255
- Toggle 0.013 to 0.0311
- Toggle 0.018 to 0.0322

### Transformer windings

- 30v @ 6A 0.16 Ohm
- 12.6v @ 1.2A 1.04 Ohm
- 12.6v @ 2.0A 0.56 Ohm

**NOTE: All Data in Ohms**

## Puns for those with a higher IQ

Dancing cheek-to-cheek is really a form of floor play.

Reading while sunbathing makes you well red.

A bicycle can't stand on its own because it is two tired.

What's the definition of a will? (It's a dead give away.)

Time flies like an arrow. Fruit flies like a banana.

In democracy your vote counts. In feudalism your count votes.

She was engaged to a boyfriend with a wooden leg but broke it off.

A chicken crossing the road is poultry in motion.

If you don't pay your exorcist, you get repossessed

With her marriage, she got a new name and a dress.

The man who fell into an upholstery machine is fully recovered.

You feel stuck with your debt if you can't budge it.

Local Area Network in Australia - the LAN down under.

Every calendar's days are numbered.

### CLUB INFORMATION

**Postal address** PO Box 19937 Sunward Park 1470

**Website** <http://www.zs6hvb.za.net>

**Back issues of Shacknews available on the club website**

**e-mail** [zs6hvb@zs6hvb.za.net](mailto:zs6hvb@zs6hvb.za.net)

**Repeater** 145.1875 MHz input - 145.7875 MHz output

**Linked** to 70 cm - 438.850 Mhz (Sunday bulletins)

**Bulletins** Sunday morning - 145.7875 MHz & 7062 KHz @ 08h45.  
Relay - 80M - 3662KHz

#### Monthly meeting venue

Germiston Methodist Church  
Room at back of the offices  
Lady Duncan Rd  
Germiston

*3rd Saturday of the month at 14:30*

#### Committee

Chairman	Ton van Dijk	ZS6ANA	011-432-5494
Secretary/Treasurer	Berridge Emmett	ZS6BFL	011-893-1291
Assistant Secretary	Marianne Treyvellan	ZR6JMT	079-519-8808
Repeater/Technical	Ton van Dijk	ZS6ANA	011-432-5494
Repeater/Technical Assistant	Frank van Wensveen	ZS6TMV	082-294-2648
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Webmaster	Yvonne van Dijk	ZR6TBL	011-432-5494
Assistant Webmaster	Marianne Treyvellan	ZR6JMT	079-519-8808

#### Club bank details

First National Bank - Current Account 62116557309. Branch Code for EFT 250655