

Greenwich Instrument Co. Inc, Division of Parker Medical

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How to measure A+C with a voltage divider

In order to properly measure Anode + Cathode voltage from a voltage divider, such as the Parker Medical H917 voltage divider, you must perfectly match the output impedance of the divider.

1. With a 2-channel oscilloscope it is easy.
 - 1.1 Set the output selection to 10,000 Ω , scope, 1 meg ohm impedance.
 - 1.2 Connect the Anode to Ch. 1, the Cathode to Ch2 with BNC cables.
 - 1.3 Set the scope to 2 volts per division.
 - 1.4 Set scope mode to Ch1 + Ch2 and set Ch2 to invert or it may be Ch 1-Ch2.
 - 1.5 Make your measurements.

2. With a digital voltmeter, such as Fluke 87 family, you can measure the anode voltage or the cathode voltage directly by using the 10000:1, 1 meg ohm range on the voltage divider.
3. However, to measure Anode + Cathode, strictly speaking it is A-C, it is not as straight forward. You must match the impedance on both the anode and cathode. In order to do this we combine the impedance of the meter with two shunt resistors.
 - 3.1 Figure 1. I am using a BNC Male to Banana Plug adapter so I can screw in a combination of 1% metal film resistors that measure as close as possible to 1.25 meg ohm.
 - 3.2 I put one shunt resistor over the anode BNC of the voltage divider and another over the cathode BNC of the voltage divider.
 - 3.3 I connect the Anode Red post to the meter positive, and the Cathode Red post to the meter negative. Set the meter for 20 volts DC if you know it has a 1 meg input impedance. Fluke lab grade 8842A meters are infinite impedance on 20 volts and below but are 10 meg ohms on 200 volt range. Fluke 8845A lab meters are factory set for 10 meg on all ranges but may be set for infinite on 10-volt range and below. Fluke type 87 family, and most all handhelds are 10 meg input resistance on all ranges. Consult your manual.
 - 3.4 You may optionally use the peak hold device on your meter to capture peak in a short or single-phase exposure.

Figure 1.

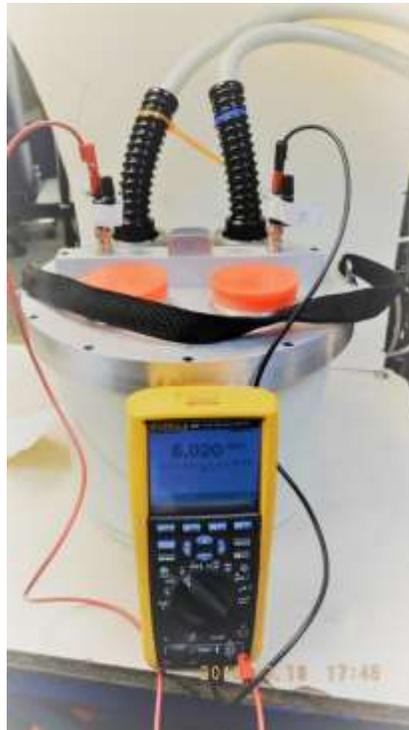
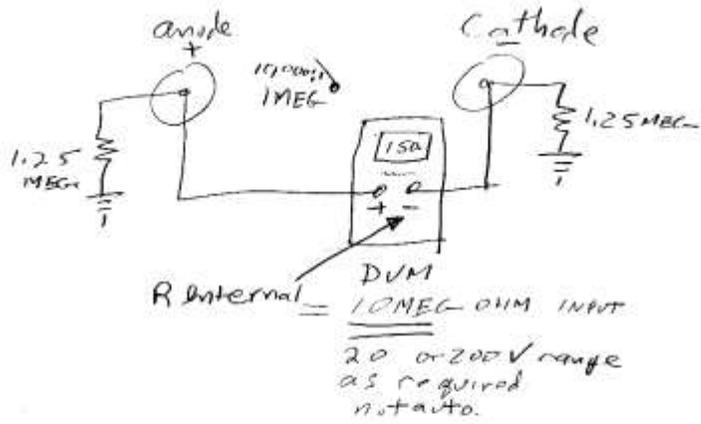


Figure 2.

Meter indicate 6.02 volts= 60.2 kv applied. Actual applied was 60.175 kv