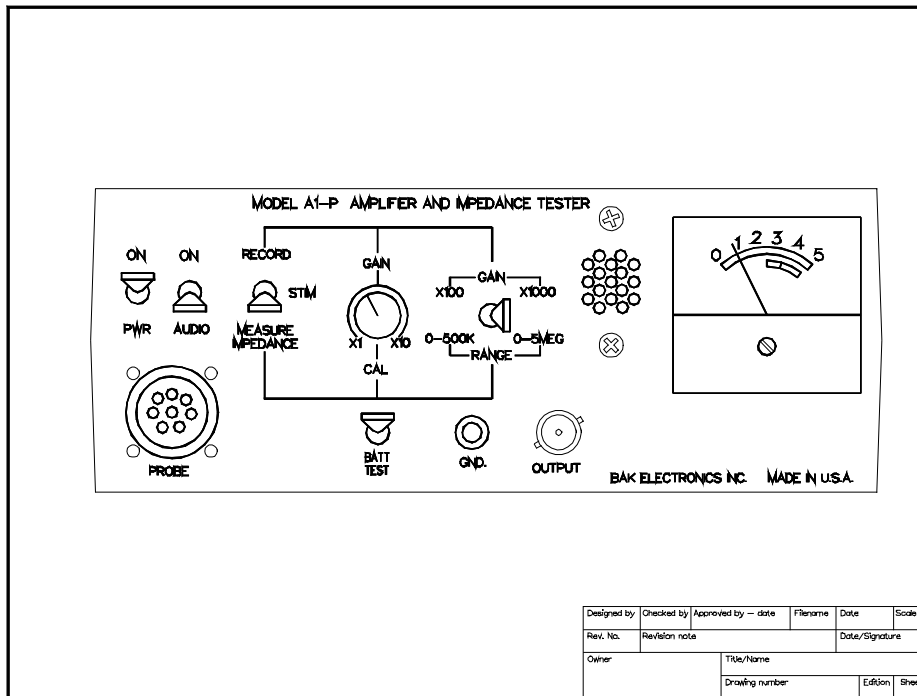




BAK ELECTRONICS, INC.
Biomedical Instrumentation

MODEL A-1P PORTABLE BATTERY POWERED
METAL MICROELECTRODE AMPLIFIER AND IMPEDANCE TESTER



Model A-1P

- HEAD STAGE RELAYS FOR REMOTE SELECTION OF:
 - Record Mode
 - Stimulate Mode
 - Impedance Test
- INTERNAL 1 kHz IMPEDANCE METER
- CONTINUOUS GAIN CONTROL: 100-10,000
- BUILT IN SPEAKER FOR AUDIBLE SIGNAL MONITORING
- BUILT IN BATTERY TEST MODE

Description:

The Model A-1P amplifier was designed as a versatile preamplifier and impedance testing system for metal micro-electrodes. The Model A-1P comes with a small remote active probe so that the input amplification stage is as close to the electrode as possible in order to reduce input capacity and noise pickup. The impedance of the electrode may be measured by simply PLACING the mode switch on the front panel to TEST and observing the impedance value on the meter.

Another feature of the MODEL A-1P is the capability of delivering an externally derived current or voltage signal to the electrode by positioning the mode switch to STIM with the external source plugged in the red mini-banana jack on the probe stage. This eliminates having to manipulate the electrode lead wires. Miniature reed relays in the head stage modify the input configuration for the three different modes of operation.

The Model A-1P is portable and battery powered.

Specifications:

Amplifier

Gain	100 to 10,000 (continuous)
Bandwidth	100 Hz to 6 kHz (3db/down)
Cutoff Slope.....	Low Frequency: elliptic <i>see fig. 1</i> High Frequency: 3 pole (18 db/octave)
Noise	Less than 10 microvolts peak-peak RTI
Input Impedance.....	1 Gohm single-ended JFET
Input Coupling	AC
Input Dynamic Range	250 millivolts
Signal Polarity	Non-inverting
Input Capacitance	Less than 10 picofarads
Output Impedance	100 ohms

Impedance Tester

Sine Wave Frequency	1 kHz
Testing Current	Less than 40 nanoamps
Impedance Testing Range.....	10 K to 5 megohms
Accuracy	Less than 10% error
Power Requirements	(2) 9-Volt Alkaline or lithium batteries 100 hour battery life
Size	8.8"w x 3.5"h x 7.0"d
Probe Size	1.4"w x 1.13"h x 2.25"d
Weight	1.5 lbs

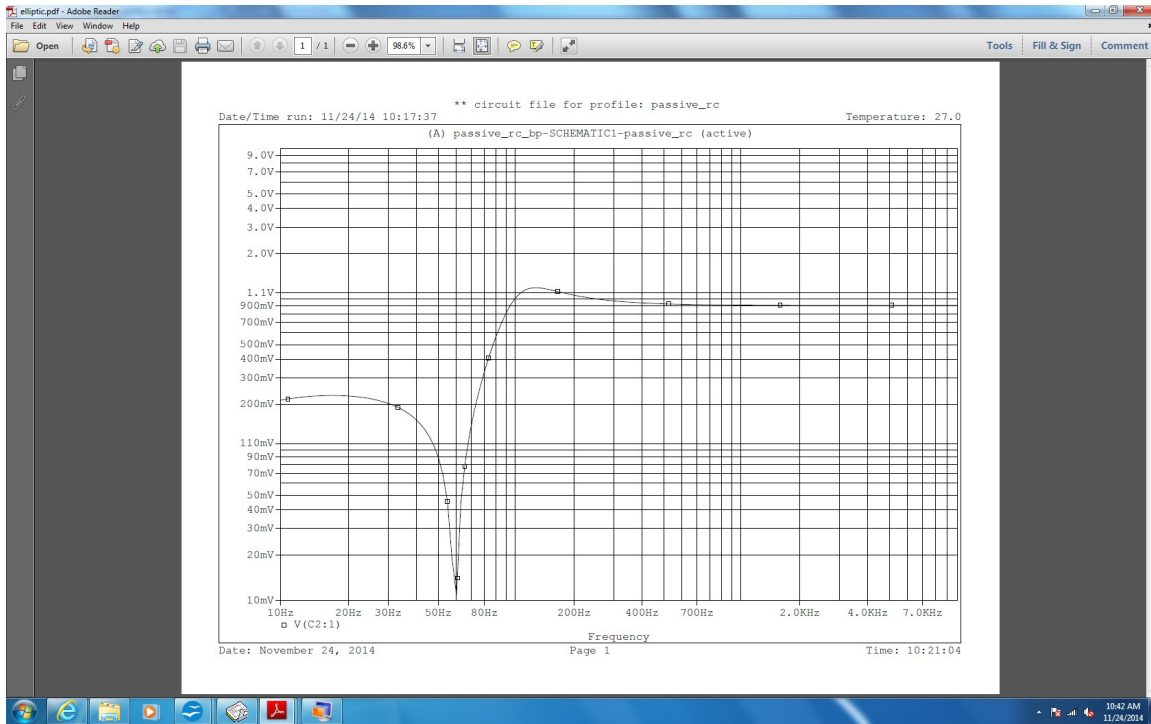


FIGURE 1.

The high pass filter built into the A-1P is of the type “elliptic”. This reduces the amplitude of frequencies below 100 Hz. and has the added feature of a “zero”. The zero creates a notch at 60Hz. and therefore reduces power line noise substantially (more than 30dB).

CERTIFICATION

BAK Electronics certifies that this instrument has been tested and inspected thoroughly and was found to meet all published specifications before shipment from the factory.

WARRANTY

All BAK Electronics' products are warranted against defects in materials and workmanship for one full year from the date of delivery. Products that prove to be defective during the warranty period will be repaired or replaced without charge provided they are returned to the factory. No other warranty is expressed or implied. We are not liable for consequential damages.

SERVICE

BAK Electronics will provide for servicing and calibration after the warranty period for a reasonable service charge. The instrument should be shipped to the factory postage prepaid. There is a minimum service charge of one hundred dollars (\$100.00) and all instruments will be repaired, calibrated and returned promptly.