



**BAK ELECTRONICS, INC.**  
**Biomedical Instrumentation**

## METAL MICROELECTRODE PREAMPLIFIER AND IMPEDANCE TESTER



### Model A-1(B)

- HEAD STAGE RELAYS FOR REMOTE SELECTION OF:
  - Record Mode
  - Stimulate Mode
  - Impedance Test
- INTERNAL 1 kHz NANOAMP TESTER WITH PANEL METER
- CONTINUOUS GAIN CONTROL: 100-10,000
  - OPTIONAL FILTERING

### Description:

The Model A-1 amplifier was designed as a versatile preamplifier and impedance testing system for metal micro-electrodes. The Model A-1 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 turning the mode switch on the front panel to TEST and observing the impedance value on the meter.

Another feature of the MODEL A-1 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-1 is of modular construction and slides easily into the Model RP-1 rack mount power supply module cage.

Specifications:

Amplifier

Gain .....	100 to 10,000 (continuous)
Bandwidth .....	100 Hz to 6 kHz (3db/down)
Cutoff Slope.....	Low Frequency 30 db/octave
	High Frequency 12 db/octave
Noise .....	Less than 10 microvolts peak-peak RTI
Input Impedance.....	50 megohms single-ended
Input Coupling .....	AC
Input Dynamic Range .....	100 millivolts
Signal Polarity .....	Non-inverting
Input Capacitance .....	Less than 20 picofarads
Output Impedance .....	100 ohms

Impedance  
Tester

Sine Wave Frequency .....	1 kHz
Testing Current .....	Less than 90 nanoamps
Impedance Testing Range.....	10 K to 5 megohms
Accuracy .....	Less than 10% error
Power Requirements .....	±15 volts supplied by the Model RP-1
	(+30 rna typ., +70 rna max) and (-25 ma)
Size .....	5.6"w x 5.25"h x 7.25"d
Probe Size .....	1.4"w x 1.13"h x 2.25"d
Weight .....	1.5 lbs

OPTIONS:

OPTION (I) - Price Class D – FILTERS

Specify either A-1(1) or A-1E(1) when ordering and include in description two frequencies each for high and low cut-off values. Two toggle switches will be installed for selecting the filters, which are single pole (6 db/octave) and are in addition to the normal roll-off filtering of the unit (100 Hz to 6 kHz).

## 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 ~~eighty~~ dollars (\$100.00) and all instruments will be repaired, calibrated and returned promptly. Please enclose a cover letter with the instrument explaining deficiencies and identify by serial number in all correspondence pertaining to any instrument.