



BAK ELECTRONICS, INC. Biomedical Instrumentation

41301 Silver Drive, Umatilla, FL 32784 / Office: 407-324-2907 / e-mail: bakinc@rcn.com

AC DIFFERENTIAL AMPLIFIERS

Model MDA-1

Model MDA-2



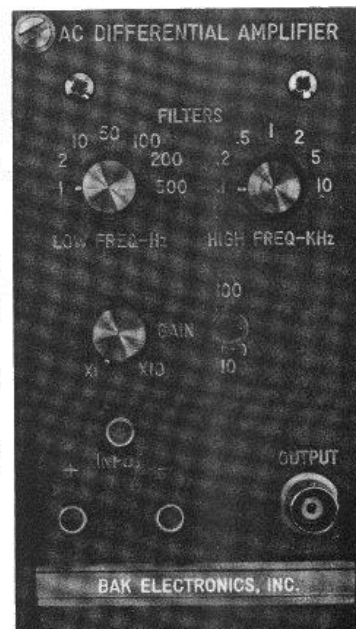
*IDEAL FOR EMG, ENG, EOG,
ECG MACROELECTRODES*

*CONTINUOUSLY VARIABLE
GAIN 10 - 1,000*

*VERY HIGH COMMON MODE
REJECTION
ACROSS 1 Hz - 10 kHz BAND-
WIDTH*

*HIGH AND LOW PASS FILTER-
ING*

*STIMULUS DELIVERY OPTION
(MDA-1)*



Description:

The Model MDA- 1 was designed for relatively low impedance differential recordings using metal microelectrodes. It is primarily intended for muscle and nerve studies where low noise and very high common mode rejection are necessary. This amplifier has both low and high frequency seven position cut-off switches. The unique feature of the Model MDA-1 is the ability to pass externally derived stimulus pulses through the recording electrodes via two front panel banana jacks. A three position switch selects the three modes of operation which are record, stimulate and gate-on stimulus. The later mode allows the investigator to program in the stimulus via the Model MDA-1 internal reed switches and gate-pulse input connector. The Model MDA-1 will remain in the stimulus mode as long as the gate pulse remains high and will return to the recording mode when it goes low. The Model MDA-1 has a gain of 10 to 1,000 with continuous resolution and low output impedance for driving several signal processing and analog recording devices. The Model MDA-1 is of modular construction and slides easily into the Model RP-1 rack mount power supply module cage system.

The Model MDA-2 is similar to the MDA-1 but does not include the stimulus delivery system.

Specifications:

Input Impedance	10 megohms
Output Impedance	100 ohms
Output Dynamic Range	25 volts peak to peak
Input Coupling	AC
Input Time Constant	0.5 sec
High Cut-Off Ranges (3 db)	0.1, 0.2, 0.5, 1, 2, 5, and 10 kHz
Low Cut-Off Ranges (3 db)	1, 2, 10, 50, 100, 200, and 500 Hz
Common Mode Rejection	90 db @ 60 Hz

80 db @ 1 kHz

Gain 10 to 1,000 (X1-X10 continuous one turn)
Noise less than 12 μ V p-p (wide band)
Stimulus Gate Pulse 4 volts min. (5 msec pulse width min.)
Power Requirements \pm 15 volts @ \pm 20 ma
Size 2.8"w x 5.25"h x 7.25"d

Other BAK equipment often used with MDA-1,2:

DDIS1 Dual Window Discriminator	PSI-1 Pulsed Sample/Hold Integrator
DIS-1 Window Discriminator	PF-1 Paynter Filter
AD-3,6 Analog Delay	ABI-1 AC Bridge Integrator
ISI-1 Interspike Interval Converter	BPG-1,2 Biphasic Pulse Generator
RG-1 Raster Stepper	BSI-1 Biphasic Stimulus Isolator

Other BAK electronic amplifiers suitable for different requirements:

High Impedance Differential (microelectrodes):	MDA-3, MDA-4
Built In Electrode Impedance Testing:	A-1, A-1B
Batter Powered:	A-1B
Low-Cost Single Ended:	MMRS-1S
Multi-Channel Probe:	MMRS-1P (25 single ended hybrid F.E.T. 's)

Contact us at:
Bak Electronics, Inc.
41301 Silver Dr.
Umatilla, FL 32784
Phone: 407-324-2907
Fax: 352-771-0041
Email: info@bakelectronicsinc.com
Email: bakinc@rcn.com

