



BAK ELECTRONICS, INC. *Biomedical Instrumentation*

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BIPHASIC STIMULUS ISOLATOR (Pulse Output)

Model BSI-2A



- TWO INDEPENDENT CONSTANT CURRENT SOURCES:
- USE SEPERATELY OR BI-PHASIC
- ACCEPTS TTL OR BIPHASIC GATES
- MULTI-RANGE 70-TURN AMPLITUDE CONTROLS
- PLUS & MINUS 90 VOLTS COMPLIANCE
- BATTERY OPERATED GALVANICALLY ISOLATED

Description:

The Model BSI-2A Biphasic Stimulus Isolator has been optimized for applications requiring precise control of rectangular waveform stimuli. It is designed for use with external timing circuits which are biphasic single channel (e.g. BAK BPG-1,2) or dual channel TTL (BAK DC-1 Digital Controller or other monophasic pulse signal sources such as computers). The external timing input(s) gates each of the two galvanically isolated, independently battery powered, constant current sources. Because they have completely independent isolators, range controls, and output circuits, the "A" and "B" outputs can be used as independent monophasic stimuli which are completely isolated from each other as well as from the control input. Each output has an inversion switch and an extra binding post to facilitate installation of coupling capacitors or current monitoring resistors. The two sets of output binding posts are strategically placed so that the addition of two jumpers (provided) converts the unit instantly to biphasic or pulse pair operation.

The Model BSI-2A features high compliance, high isolation, and the same conveniently portable plastic case as the BSI- 1A. The main difference is that its output circuitry has been optimized for gated on-off operation rather than proportional input following. This mode of operation is inherently very low noise and eliminates the danger of applying DC currents as a result of low level offsets in the control signal between output pulses. It also permits manual fine tuning of the output level from the unit itself which can be placed near the preparation. If you need non-rectangular waveforms (e.g. sinusoids, ramps or computer D/A driving), we recommend the BSI- 1, a linear biphasic stimulus isolator with a complete range of both constant current and constant voltage output levels.

Specifications:

Constant Current	100 nA to 10 mA each channel with polarity inversion switch
Current Control Ranges	1,10, 100 and 1000uA.per turn via 5 position rotary switches each channel
Output Controls	10 turn potentiometer with indicating dial each channel
Output Linearity	1 % all ranges
Compliance Voltage	90 volts each channel, independent battery sources
Isolation	1000 VDC (photically isolated), <30pF between any two jacks
Output Connections	3-way banana binding posts, 3 each channel
Input Connections	Floating BNC jacks
Input Signal: A/B Biphasic	+/- 2.8 V mm., TTL compatible, protected to +/-15V
Input Signal: B Only	+/- 2.8 V mm., TTL compatible, protected to +/-15V
Power Supply	2: 9 Volt Lithium batteries
Battery Life	100 hours
Package	Bench mount with supporting handle
Size	3.5"h x 26"w x 7.5"d (less handle)
Weight	3 lbs. (shipped with batteries installed)

Other BAK equipment used with BSI-2A:

BPG- 1,2 Biphasic Pulse Generators
DC-1 Digital Controller
MDA-1 ,4 Differential Amplifiers with Stimulus Gating
A-1 Single Ended Extracellular Microelectrode Amplifier

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