Biphasic Isolated Stimulators

Biphasic Stimulus Isolator (BSI-2)

- Two independent constant current sources: use separately or biphasically
- Accepts TTL or biphasic gates
- Multi-range 70-turn amplitude controls
- ± 90 volts compliance
- Battery operated photically isolated

The Model BSI-2 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 or dual channel TTL. The external timing input(s) gates each of the two photically 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-2 features high compliance, high isolation, and the same conveniently portable plastic case as the BSI-1. 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.

Specifications

Constant Current	100 nA to 10 mA each channel with polarity inversion switch
Current Control Ranges	1,10, l00 and 1000 µA 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), < 30 pF 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 ±15 V
B Only	±2.8 V mm, TTL compatible, protected to ±15 V
Power Supply	2 x 9 V lithium batteries & 4 x 45 V batteries
Battery Life	100 hrs minimum
Package	Bench mount with supporting handle
Size, H x W x D	3.5 x 26 x 7.5 in (less handle)
Weight	5 lbs (shipped with batteries installed)

Catalog No.	Product
CGS 8135.71	BSI-2 Dual Channel Biphasic Stimulus Isolator

Biphasic Stimulus Isolator (BSI-1)

- Output waveform follows input (linear)
- Constant current and constant voltage
- ±125 volts compliance
- Battery operated photically isolated

The Model BSI-1 Biphasic Stimulus Isolator is totally battery-powered utilizing optimum packaging design to provide maximum isolation of stimulus signals. This instrument is a truly linear device which converts any waveform from 0 to ±10 volts into a constant current or voltage stimulus. It has a constant current range from ±100 nA to ±10 mA with a compliance voltage of up to ±125 VDC and a constant voltage range between 0 and ±125 VDC. A 4-position front panel range switch allows optimum resolution for selecting precise stimulus amplitudes. A calibrated front panel control knob allows the investigator to apply input signal levels which can be attenuated to give continuously adjustable output levels. A separate output jack is provided for monitoring current levels through the electrode so that no connection need be made across the electrode which could interrupt the stimulus' current path. The Model BSI-1 is completely self-contained and portable with an adjustable handle for convenient placement near the preparation. It is the logical companion to the BPG-1,2 Biphasic Pulse Generators.

Specifications

Constant Current	±100 nA to ±10 mA
Constant Voltage	Zero to ±125 V
Linearity	1%
Noise	0.5% of full output range
Compliance Voltage in Constant Current Mode	±125 V
Isolation	1000 V (photically isolated)
Input Voltage Range	0 to ±10 V (accepts any waveform)
Range Adjust	4 position switch & calibrated input attenuator knob (0 to 1.0)
Rise Time	2 µsec w/ 1 MΩ source impedance
Slew Rate	5 V/µsec
Current Monitor Output	1 mV/µA
Power Supply	4 x 9 V lithium batteries 4 x 67.5 V batteries
Weight	5 lbs

Catalog No.	Product
CGS 8136.71	BSI-1 Single-Channel Biphasic Stimulus Isolator
CGS 8137.71	Replacement Battery*, 9 V Li Ion
CGS 8138.71	Replacement Batteries, 45 V
CGS 8139.71	Replacement Battery*, 67.5 V