



CGS 8143.28

### Harvard Stimulators

Pulses can be disconnected from the preparation by means of the switch adjacent to the output. The gate mode allows pulses (at the frequency set on the front panel controls) at the output:

- For as long as the manual push-button is pressed, or
- For as long as a short circuit is maintained across the gate-in sockets, or
- For as long as a logic address is present across the gate-in sockets. The gate-in sockets are triggered by the negative edge of a logic pulse (i.e. by the leading edge of a negative pulse or the trailing edge of a positive pulse. The single shot mode (S/S) allows a pulse at the output each time the manual push-button is pressed or each time a short circuit or logic address is maintained across the gate-in sockets.

The two pulses produced in the dual pulse mode will have identical amplitudes and widths, however, the time between pulses can be varied from 0 to 1000 msec. The Single/Dual Pulse Stimulator has nine pulse widths from 0.1 to 50 msec. There is also an oscilloscope sync facility. The 'scope sync' sockets provide a 20 µsec negative pulse at the start of each pulse or dual pulse cycle. Two Stimulators (either two Single Pulse, two Single/Dual Pulse or one Single Pulse and one Single/Dual Pulse Stimulator) can become a Two-Channel Stimulator by connecting the gate-out sockets on one Stimulator to the gate-in sockets on the other.

- Two models available:
    - Single pulse stimulator provides only one pulse per cycle
    - Single/dual pulse stimulator provides either one or two pulses per cycle
- A three-position switch provides for:**
- Continuous pulses
  - Single pulses via a front panel push button or via the gate-in sockets
  - Gated pulses via the gate-in sockets



### Harvard Stimulus Isolation Unit

- Essential safety device for experiments involving AC-powered stimulators
- Effectively isolates any stimulator having a minimum output of 12 volts
- Available with positive or negative output pulses

This Isolation Unit makes true biphasic stimulation available to the researcher at a low cost when used in conjunction with the Harvard Single Pulse Stimulator and Harvard Single/Dual Pulse Stimulator. This self-contained, battery-powered Isolation Unit is constructed of plastic for additional isolation. The Unit's output faithfully reproduces the pulse shape characteristics of the driving stimulator, but is optically isolated from it. The output voltage is controlled by a 3 decade digital potentiometer providing a range from zero volts to approximately 96% battery supply voltage in steps of 0.1%.

In operation, the stimulator controls are set to the required pulse width and frequency. These factors are maintained independently of the stimulator voltage. The output of the stimulator is set to 12 volts. It is then connected to the Stimulus Isolation Unit. The output of this Isolation Unit is then set to the required voltage and connected to the appropriate electrodes.

### Specifications

Number of Channels	1
Pulse Mode Selection	Continuous, Single Shot, Gate
Output Voltage Range	0 to 5 V and 0 to 50 V, continuously variable
Output	8 W
Pulse Rise and Fall Times	> 5 µsec
Connections	Two 4 mm sockets to accept 4 mm double banana connector
Gate-In	Logic pulse address 5 to 12 V (< 200 µsec for 5 V and > 20 µsec for 12 V)
Power	115/230 VAC, 50/60 Hz

### Harvard Stimulators

	Single Pulse	Single/Dual Pulse
Pulses Per Cycle	1	1 or 2, selectable
Frequency Range, Continuously Variable	0.1 to 100 Hz	0.1 to 1000 Hz
Pulse Widths	0.1, 0.2, 0.5, 1, 2 and 5 msec	0.1, 0.2, 0.5, 1, 2, 5, 10, 20 and 50 msec
Catalog No.	CGS8142.71	Descontinuado CGS 8143.71

### Specifications

External Power Source	12 to 100 VDC batteries
Input from Stimulator	12 V
Output Impedance	≤ 100 Ω
Dimensions, H x W x D	60 x 155 x 95 mm (25 x 6 x 35 in)
Weight	225 g (1/2 lb)

Catalog No.	Product
CGS 8144.71	Harvard Stimulus Isolation Unit with Positive Output Pulses
CGS 8145.71	Harvard Stimulus Isolation Unit with Negative Output Pulses