



Digital Stimulators

Cat. No. 3200 / 3300 / 3400

General

The user-friendly digital Stimulators by LETICA are available as single or multiple channel units.

They are compact reliable instruments which offer excellent performances for most physio-pharmacological experiments.



SAFETY - EFFICIENCY

Main Features

- microprocessor controlled pulse management: single pulses, free running or trains
- up to 100 V/100 mA constant voltage/constant current
- continuously variable output; digitally displayed channel by channel in the modular version
- built-in isolated output circuit, non referred to ground

Constant Voltage/Constant Current Stimulation

At constant voltage, i.e., having set the voltage amplitude, we do not know the magnitude (expressed in mA) of the ion flux which crosses the organ. This ion flux which is of paramount physio-pharmacological meaning, is function of the preparation impedance.

The impedance in turn depends on the electrode shape & position, type of solution, etc., and it is difficult to be gauged at first sight.

Moreover, the impedance "drifts" so to speak, due to electrode polarization, physio-pharmacological alterations, etc. in the course of the experiment.

At constant current, we read the actual value of the current when we set it. Admittedly, this does not resolve all problems!

When the organ is embedded in other tissues as in most in-vivo applications or when the field electrodes are used (a popular in-vitro method) a good deal of current flows through contiguous tissue or, respectively, the solution.

To sum up, in the constant current mode, at least one of the two basic parameters, **the current flowing through the preparation in-toto** (altogether) is known with certitude. The second parameter, **the fraction of the current flowing through the organ proper** can not be exactly determined in either modes, we mean constant current & constant voltage.

It is therefore preferable to stimulate at constant current. However, in particular in the "old" literature, the constant volt-age stimulation is often described.

Both modes are possible with the LETICA research models (Cat. 3200 and 3400).

Model Selection

A complete range of digital stimulators is available, ranging from the basic model for student use, Cat. 3300, and the single stimulator Cat. 3200, to the multiple stimulator 3400, in modular version, which can lodge up to 4 output modules 3450, for the simultaneous stimulation of up to 4 preparations.

All stimulators, except the 3300 (student model) have the train generating capability.

Options

The **Ugo Basile 3165 Multiplexing Pulse Booster** offers a convenient way to increase the number of channels of your stimulator, without the need of a high power multi-channel model. The 3165 can be a useful complement to any single channel stimulator to energize up to four in-vitro electrode pairs at the same time.

Technical Specifications

Pulse Frequency	:1 to 99999 p.p.s.
Pulse Duration	:1 μ s to 9999 ms
Train Interval	:0.1 to 999.9 s
Train Duration	:1 to 9999 ms
Constant Voltage/ Current	:0 to 100 V/mA (1 V/mA resolution)
Constant Voltage (Student Stimulator)	:0 to 100 V (1 V resolution)
Accuracy	:< 1% for timing :< 1% for output
Sinc out	: V TTL signal synchronic w/pulse onset
DC	:DC level with the set amplitude
External Trigger	:TTL signal allowing for the external control of the pulse onset
Max. Power Output	:20 W
Dimensions	:3200 = 37 x 15.5 x 29 cm 3400 = 48 x 20 x 29 cm
Weight	: 3200 = Kg. 3.00 3400 = Kg. 5.00 (with 4 modules)
Shipping Weight (approx.)	:3200 = Kg. 7.00 3400 = Kg. 9.00 (with 4 modules)
Power	:110/220 V, 50/60 Hz, 60 VA max.

Ordering Information

3200	Single Channel Stimulator, 0 to 100 V/mA voltage & current output
3300	Single Channel Stimulator, for student use
3400	Modular Stimulator time base and main frame for up to 4 channels
3450	Output Module for 3400, 0 to 100 V/mA constant voltage & current output
3160	Field Stimulation Platinum Electrode
3165	Multiplexing Pulse Booster