

Fully programmable constant-current electrical stimulator for invasive use in human patients

- Delivers bi- or mono-phasic, constant current pulses
- Stand-alone device that is configured and controlled from a computer system
- Can send/receive triggers to/from other devices for synchronization
- Includes electrode impedance check and stimulation current monitoring
- Can be included into closed-loop experiments
- CE-certified (Europe) and FDA-listed (USA) medical device for use in human patients



g.Estim^{PRO} description

g.Estim PRO is a constant current, mono/biphasic electrical stimulator intended for stimulation of neural tissue. g.Estim PRO has an applied part of type BF with connectors for bipolar stimulation electrodes (anode and cathode). The device is controlled by a computer via USB connection. It also has digital outputs and inputs for synchronization with other devices. A hand-switch allows you to perform stimulation manually. Alternatively, a foot-switch can be used to explicitly enable/disable stimulation, such as in closed-loop scenarios, during which the device can be triggered in real-time from a MATLAB/Simulink block. g.Estim PRO includes an impedance check and measures the actually applied stimulation current and voltage for verification purposes. With its 80V compliance voltage, it is perfectly suited for use with standard as well as high-impedance electrodes. The device is CE certified (Europe) and listed by the FDA (USA) for use in human patients for investigations like electrical cortical stimulation (ECS) mapping.

The intended use

The g.Estim PRO is intended for use in functional brain mapping during brain surgery or treatment of seizure patients, providing stimulation via electrode pairs or a hand held bipolar probe. The device must be used by medically trained and qualified personnel within a medical environment.

General specifications

Stimulus current output	±0.05 - 15 mA (±10%)
Phase shape	rectangular
Phase duration	50 µs - 1.0 ms in 10 µs increments (±5% or ±5 µs whichever greater)
Inter-phase duration	0 - 1.0 ms in 10 µs increments (±5% or ±5 µs whichever greater)
Pulse frequency	0.1 Hz - 500 Hz in 0.1 Hz increments (±10%) (Pulse period from 10 s down to 2 ms)
Train duration	1 - 30000 pulses
Power supply	2 x 9V battery, USB - connection

The device is designed and manufactured according to the following norms:
IEC 60601-1, IEC 60601-1-2, IEC 60601-2-40, IEC 62304, IEC 62366, EN ISO 14971

Rx only



rear view



foot switch



hand switch