

# **Small Animal Shocker**

**SAS - 2 series**

User's Manual

**SUPERTECH**

## Technical specification

AC current generator at the output

The output waveform is bipolar sine wave

Current range at the output: 0.05 to 2 mA

This range is suitable from small mice to great dogs.

Output load range: 0 (shortcut) to open circuit (any load is allowed).

Compliance (open circuit) voltage: 180 V AC RMS

If the compliance voltage is reached in constant current mode, the output behaves as an AC voltage source of 180 V RMS (the current is determined by the Ohm's law).

Working (shocking) frequency: 50 Hz or 60 Hz (equals to the mains frequency)

Typical load impedance at output (e.g. sole of a rat on a shocking grid): 10 kOhm

Mains voltage: 230 V or 115 V (switch selectable)

Tolerance of the mains voltage: +/- 10 %

Manual output current adjustment with a 10-turn helical potmeter

Manual or computer-controlled activity (may be used together, independently from each other)

Control input: TTL H-level is active (overvoltage protected, from 2 V to 40 V)

Double security insulation from mains

Double security insulation for output

Security isolated control input

## Fields of applications

The output current range (0.05 – 2.0 mA) is quite wide to cover many research applications. This range is suitable even from small mice to huge experimental animals. The precision potmeter for adjusting the output current gives a great resolution to optimize the level of the shocking current.

## **Selecting the mains voltage**

**Be careful! This is a dangerous operation! During this action the shocker must be disconnected from the mains wall outlet!**

**Furthermore, the shocker will be destroyed, if you try to operate on 230 V if it is switched to 115 V!**

The shocker can be operated either 230V or 115V of mains voltage. Before connecting the mains outlet, you must select the appropriate mains voltage. We ship the equipment switched to 230 V by the factory. If there is the same or similar (220 V – 240 V) mains voltage at your country, you have no other tasks, you can use your shocker immediately. If the mains voltage at your location is in the range from 110 V to 125 V, you have to modify the selection. The steps, how to do it:

- 1) Disconnect the mains cable from the shocker.
- 2) Remove the four light grey cover caps with a screwdriver on the top of the equipment.
- 3) Remove the four screws with a Phillips screwdriver.
- 4) Remove the top cover of the equipment.
- 5) There is an internal switch on the printed circuit board in the inside of the shocker to select the mains voltage. This switch is located close to the mains input connector. Select the appropriate voltage.
- 6) Put the top cover back, and turn the screws back. Finally put the light grey cover caps back.

## **External control**

The external control input is TTL-compatible, with extended tolerance. The shocker can be activated with High level applied to this input. The internal circuit is designed to accept control voltage in the range from 2 V to 40 V. This feature gives the possibility to connect our shocker directly to the generally used behavioral measuring systems using not only TTL, but higher control voltages, as well.

## **Isolation security**

Our precision, current-regulated shocker is completely isolated (floating output) for operator and subject safety. It is also isolated from other sources of electrical stimulation such as physiological stimulators and/or electrophoretic equipments that may be in use concurrently. Isolation is achieved by using 4 kV security isolated transformers.

## **Warranty, assistance and helpdesk**

We give you full warranty service, including rest parts for the period of 3 years by default. Longer warranty periods can also be defined and agreed (the actual conditions should be discussed before placing the order).

International technical hotline by phone: (36) (20) 9234-386

Technical hotline by email: [csaba.niedetzky@super-tech.eu](mailto:csaba.niedetzky@super-tech.eu)