



OPERATION AND APPLICATIONS FOR BATTERY POWERED TRANSCUTANEOUS AVERSIVE FINGER STIMULATOR

MODEL NUMBER E13-22



**DO NOT ATTEMPT TO OPERATE THE STIMULATOR WITHOUT FIRST READING THIS
MANUAL FOR CAUTIONS AND WARNINGS.**

The E13-22 is a basic, two-pole, resistively regulated, battery powered aversive electric stimulator, designed for finger stimulation.

The unit features series resistance-regulation. Series resistance-regulated stimulators can never deliver more current than the total circuit resistance predicates. The set accuracy is controlled by use of a fixed series resistor. The regulation is +/- 10% over a 10K to 30K subject resistance change and is designed for long session use.

Being battery operated, it is fully isolated for subject and operator safety. The remote operate control input is optically isolated to simplify operation from any signal source from 5 to 30 VDC and to preserve total isolation.

The output stimulus configuration consists of a series of low current pulses the frequency of which is set to 50 pulses per second.

! CAUTION ! WARNING !

This instrument is intended to be used only in research situations and only by properly trained and qualified personnel capable of assessing all risks involved in its use. The stimulus output current from this device can be hazardous. Do not connect the output to any subject-connected leads other than the electrode leads supplied with the unit (Reorder model number E13-22E). The two electrodes should be placed on **two fingers of one hand**, never on two hands as this would involve a current path across the chest. **A path across the chest should always be avoided.**

Although we do not recommend any placement of electrodes other than on two fingers of one hand, some researchers may wish to use sites on the wrist, foot, or the palm and the back of the hand.

PLACE BOTH ELECTRODES AT THE DISTAL PART OF A SINGLE EXTREMITY ; SPECIFICALLY A SINGLE ARM, BELOW THE ELBOW, OR A SINGLE LEG, BELOW THE KNEE.

NEVER PLACE ELECTRODES ON OR ABOUT THE HEAD, CHEST, NECK OR ABDOMEN OR IN ANY LOCATIONS WHERE THE PATH BETWEEN THE TWO ELECTRODE SITES COULD BE THROUGH THE HEAD, NECK, CHEST OR ABDOMEN.

ALWAYS ATTACH THE ELECTRODES TO THE SUBJECT; NEVER TO OBJECTS THAT THE SUBJECT CAN TOUCH IN WAYS WHICH COULD RESULT IN UNINTENDED CURRENT PATHWAYS.

THE PRINCIPAL INVESTIGATOR, USER OR SUPERVISED OPERATOR IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF PROTOCOL, SUBJECTS, ETHICS, AND THE USE OF THIS PRODUCT IN THE OPERATING / APPLICATION ENVIRONMENT.

THE PRINCIPAL INVESTIGATOR, USER OR SUPERVISED OPERATOR IS RESPONSIBLE FOR BOTH THE BEHAVIORAL AND PHYSICAL RESPONSE AND ANY CONCOMITANT HARM TO THE SUBJECT RESULTING FROM USING THIS DEVICE.

INFORMED CONSENT: In addition to the above listed responsibilities it is recommended that as a part of the informed consent of volunteer subjects required by ethical standards, the following procedure be performed to familiarize the subject with the nature of the stimulus to which he or she is consenting: Prior to the experimental session, allow the subject to "self administer" the stimulus to determine the maximum current to which he or she is willing to be subjected. To do this, attach the electrodes in a recommended location and then set the current controls to the lowest possible setting (0.5 milliamps - the stimulus level control knob set fully counterclockwise). Then allow the subject to press the control switch down to "manual" to deliver a stimulus. Allow this to be done several times if and only if the subject is willing to continue pressing. Then allow the subject to increase the setting by a single increment of the stimulus level control knob (one click clockwise) and repeat the process of self administration. Find the level that is the maximum that the subject will tolerate voluntarily, by self administration.

NEVER ADMINISTER MORE CURRENT THAN THE SUBJECT HAS VOLUNTEERED TO ACCEPT DURING THE SELF-ADMINISTRATION, "CONSENT PRETEST".

SPECIFICATIONS

Operate Switch: On front panel. Centered - the unit is off and draws no current from the battery. Up - the unit can be remotely operated. Down - it is manually operated.

Remote Operate: Operate Switch Up - Enables an external signal to operate the shocker.

Remote Operate Control Input: On back panel - turns shocker on when external voltage (5 to 30 VDC at 20 milliamps) is applied and the operate switch is in the up ("Remote") position.

Manual Operate: Operate Switch Down - Operates shocker manually for duration of depression. (The down position of the switch is spring-loaded to return to center when released.)

Frequency: 50Hz

Set Current: Control knob sets current from .2 mA to 4.0 mA.

Light, "Stimulus On": On for duration of operation.

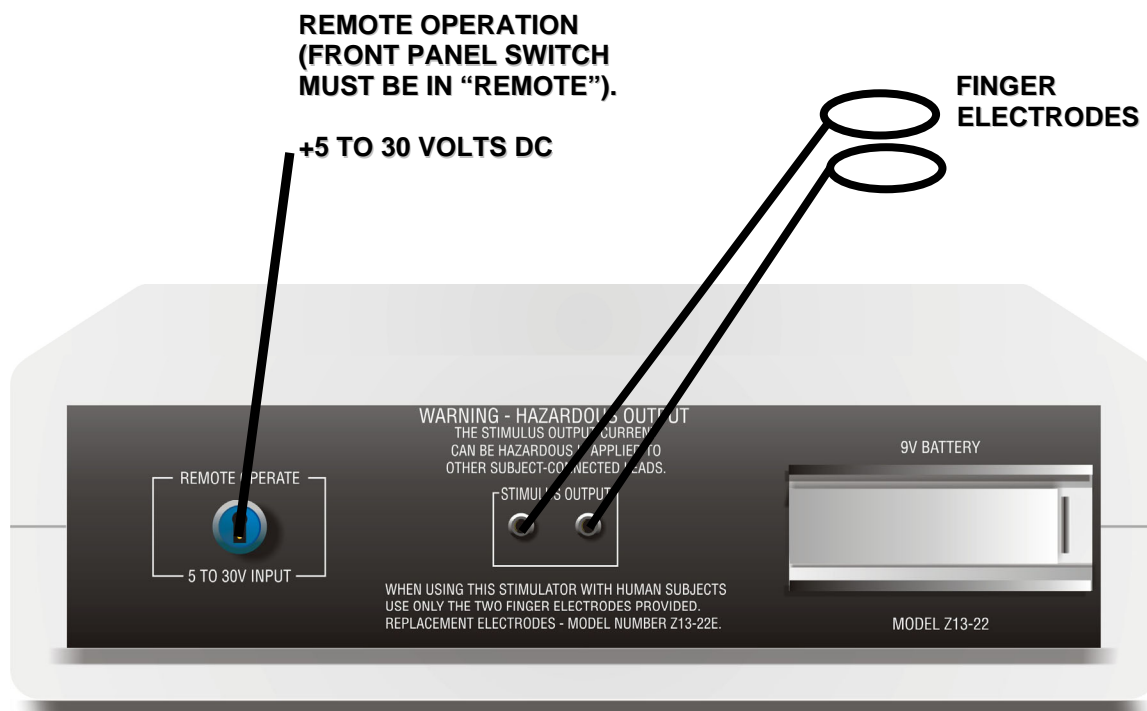
Number of Outputs: 2 Pole.

Maximum Current: 4.0 milliamps short circuit.

Output Waveform: 1 ms spike @ 50 Hz, 600 V Maximum @ 5 mA setting, with no load.

Regulation: +/- 10% over 10 to 30K Ohms.

Battery: 9 Volt transistor type, any chemistry.



ELECTRODE AND REMOTE OPERATE CONNECTIONS