507 Series
Pulse Generator
User's Manual
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1 INTRODUCTION

This manual is designed to help you quickly and easily learn to use your Berkeley Nucleonics Model 507 current pulse generator. The 507 provides digitally controlled current pulses with currents from 0 - 25 Amps and pulsewidths from 100μs to 100ms. We also offer a long pulse version which holds up to 10A for 10μs - 500ms. Rather than the usual array of knobs and switches, the 507 uses a menu-driven user interface with "on-line" help -- once you learn the basics of operating your 507, you may never need to refer to this manual again.

Since the Model 507 employs a flexible microprocessor-controlled architecture, the 507 can be customized to fit your exact requirements -- contact Berkeley Nucleonics for details.

Technical Support

For questions or comments about operating the 507, contact Berkeley Nucleonics via one of the following methods:

- Phone - (415) 453-9955
- Fax - (415) 453-9956
- Internet - www.berkeleynucleonics.com

Parts List

The following parts are included with the 507 -- contact Berkeley Nucleonics if any parts are missing:

- 507 Pulse Generator
- AC Power Cord
- User's Manual

Warranty

In addition to a 30-day money back guarantee, the Model 507 has a one-year limited warranty from the date of delivery. This warranty covers defects in materials and workmanship. Berkeley Nucleonics will repair or replace any defective unit.
Custom Modifications

The 507 is microprocessor-controlled and employs a flexible and expandable user-interface. New features and operating modes often can be added without hardware modifications by merely modifying the software contained inside the 507 - contact Berkeley Nucleonics for details.

Safety Issues

Normal use of test equipment exposes users to a certain amount of danger from electrical shock because testing must be performed where exposed voltage is present. An electrical shock causing 10 milliamps of current to pass through the heart will stop most human heartbeats. Voltage as low as 35 VDC or RMS AC should be considered dangerous and hazardous since it can produce a lethal current under certain conditions. Higher voltages pose an even greater threat because such voltage can more easily produce a lethal current. Your normal work habits should include all accepted practices that will prevent contact with exposed high voltage, and those that will steer current away from your heart in case of accidental contact with a high voltage. You will significantly reduce the risk factor if you know and observe the following safety precautions:

1. Do not expose high voltage components needlessly. Remove housings and covers only when necessary. Turn off equipment while making test connections in high-voltage circuits. Discharge high-voltage capacitors after removing power.

2. If possible, familiarize yourself with the equipment being tested and the location of high voltage points. However, remember that high voltage may appear at unexpected points in defective equipment.

3. Use an insulated floor material or a large, insulated floor mat to stand on, and an insulated work surface on which to place equipment. Make certain such surfaces are not damp or wet.

4. Use the time-proven "one hand in the pocket" technique while handling an instrument probe. Be particularly careful to avoid contacting a nearby metal object that could provide a good ground return path.

5. When testing AC powered equipment, remember that AC line voltage is usually present on some power input circuits, such
as the on-off switch, fuses, power transformer etc., any time the equipment is connected to an AC outlet, even if the equipment is turned off.

6. Never work alone. Someone should always be nearby to render aid if necessary. Training in CPR first aid is highly recommended.
2  CONTROLS AND CONNECTORS

This chapter explains the function of each control and connector on the 507.

Front Panel

The front panel contains the most frequently used controls and connectors.

Display

The 507 features a backlit liquid crystal display, which displays menu selections and settings. The left half of the display shows the current menu selection, while the right half shows the current setting of the item associated with that menu.

Control Buttons

- **Item Button**
  
  Toggles between the various items in a menu.

- **Menu Button**
  
  Toggles between the various sets of menus.

- **Up Button**
  
  Increments a number or increments the selection for the current item.

- **Down Button**
  
  Decrements a number or increments the selection for the current item.
**Left Button**

For numeric items, this button is used to select which digit in a numeric entry is selected for editing. For other items, or when the left most digit is already selected for numeric items, pressing and holding this button down displays a brief description of the current item.

**Right Button**

For numeric items, this button is used to select which digit in a numeric entry is selected for editing. For other items, or when the right most digit is already selected for numeric items, press and hold this button down to display the range and units for the current item.

**Stop Button**

Disables output of pulses on all channels.

**Run Button**

Enables output of pulses.

**Output Sections**

There are two (2) output sections on the front of the 507; each consists of a pair of banana plugs, a BNC current monitor, a toggle switch, and a charge level indicator. Each output section is independently controlled and isolated from each other. Loads are connected to the banana plugs. The toggle switch allows the user to physically disconnect the output (off position). Disconnecting the outputs is recommended while connecting loads.

*Warning:* The charge bank voltage is present on the positive (red) output jack; before connecting loads, disconnect bank voltage by placing toggle switch in off position.