# Proteus™

## Advanced Light Sound Stimulation System

# Reference Guide and User's Manual
### Revised for OS Version 2

—www.syneticsystems.com—

# Proteus™ Light Sound Stimulation System User's Guide

Congratulations!  You now own the most advanced light sound stimulation system (LSS) available on the market today.  Proteus offers several major advances over earlier models:

**MultiColor LiteFrames™**.  Now you can take advantage of the correlation between color and mental state:  green for relaxation, red for stimulation, and more than 250 combinations of the two.  Plus, the visual effects are much more intense than with old-fashioned monocolor systems!  Patent pending.

**Improved AudioStrobe® decode circuitry**.  We've added sophisticated new circuitry for an extraordinary new AudioStrobe experience.

**Internet ready**.  Connect Proteus to your computer and transfer new programs into the system.  The internal operating system can be completely updated via free download from our website.  You'll find free sessions on our site as well (www.syneticsystems.com).

**Large session memory store**.  The two oversized nonvolatile memory banks in Proteus can hold up to *199 programs*

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### READ THIS BEFORE USING PROTEUS

*Proteus* is intended for use as a tool for enhancing consciousness and for personal growth.  It is *not* intended for use as a medical diagnostic or therapeutic device, and no medical claims of any sort are made for it.

DO NOT USE THIS PRODUCT without your doctor's specific guidance if you or any family member has ever experienced any form of seizure disorder, such as epilepsy, or if you are or have been taking any form of psychoactive drug, such as amphetamines, barbiturates, cocaine, etc.

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and *four audio waveforms* at one time.  Proteus ships with 50 programs preprogrammed into memory, and these may all be modified with the included Proteus Session Editor software.

*Free* **software**.  Proteus includes free Windows 98/NT 4.0/ Windows 2000 compatible software and serial cable that you can use to create your own sessions, edit audio waveforms (including binaural beats), build your own downloadable "albums", create Bicolor ramps, etc.

These aren't the only new features;   you'll find more details in the following pages.

## Introduction

Your Proteus package should include the following items:

- · Proteus console
- · Headphones
- · MultiColor Liteframes™
- · PC-connect cable
- · Stereo patch cord
- · Proteus CD
- · Handy carry case
- · This manual

You will also need three "AA" batteries.

## Setting your system up and running your first session

**Step 1:  Install the batteries**

- · Remove the sliding battery cover from the back of Proteus.
- · Install three "AA" batteries.  Be sure to observe proper orientation.
- · Replace the battery cover.

**Step 2:  Connect the LiteFrames and headphones**

- Plug the LiteFrames into the top of the unit.
- Plug the headphones into the jack on the right side of the unit that is nearest the top.

## Step 3:  Select a program

- Turn the unit on using the slide switch on the upper right side of the console.  The display will briefly flash the installed operating system version (2.0). If the first character on the display is "P" then proceed to the next step.  Otherwise, press the middle (mode) button until the first character is "P".

- Press and hold the bottom button; notice that the display increments sequentially:  "P01," "P02," etc., indicating which program has been selected.  When the session you wish to run appears on the display, release the button.

  You can find a list of the available programs on the inside back cover of this guide.

- Two  decimal points on the display should be flashing. If this is not the case,  press the bottom two buttons simultaneously.

## Step 4:  Start the program and adjust brightness and volume

- Sit or lay down in a quiet, comfortable location.
- Press the **Start/Stop** (top) button to start a program. **Be sure to close your eyes**!  You may also need to adjust the position of the LiteFrames on your nose in order to obtain the best effect  The light brightness and sound volume will fade in for the first eight seconds.
- Adjust the brightness and volume via the two dials on top of the unit.
- You can stop the session at any time by pressing the top button *once* to initiate a twelve-second "soft off" or *twice* to stop abruptly.  Press it three times to stop during the first eight seconds ("soft-on" phase) of the pro-

gram.

Note:  Proteus will automatically shut itself off while not in use, regardless of switch position.  If it has powered down while in the *on* position, you will need to slide the switch *off* and then *on* again.

## Operating Modes:  Overview

Proteus may be used in several different ways, each associated with an *operating mode*.  You select modes by pressing the middle button.  When you do this, the following characters appear in the display in sequence:

**Pxx**     This selects the *primary memory bank*; use the bottom key to select which session to run ("xx"=session number). Proteus ships with 50 sessions preinstalled in this memory bank; you can store up to 99 sessions here—P01 through P99. P00 is the random session-it's different every time you run it.

**Uxx**     This is a second, *utility* memory bank.  It works the same way as the primary bank, except that it includes 100 session slots (U00 to U99).

**USr**     This is the *User mode*, use this to experiment with real-time changes in pulse rate, audio pitch and to toggle the LiteFrames between all lights on/off and alternating red/green (or on/off and left/right when using monocolor LiteFrames).

**PC**     Select this if you are either a) editing and testing sessions in realtime while connected to a personal computer (PC) or b) if Proteus is under control of ThoughtStream or other biofeedback device.

**AS     Audiostrobe**® decoder select.  Use this when playing AudioStrobe encoded compact discs or MP3's.  This circuit translates special signals into patterns of pulsed light, precisely synchronized withmusic or other audio material.  The effect can be quite profound, and we've included samples from several AudioStrobe CD's on the disc which is included in the Proteus package.  Dozens of additional titles are available, and

you can create your own AudioStrobe sessions using Mind Explorer software (included on the enclosed compact disc).

**dL**     Use this mode to **d**own**l**oad new sessions  into Proteus, and to upgrade the internal operating system.

Note:  when you turn Proteus on, the display will briefly show the installed Operating System version number.  Your system should show version 2.0 or later.  You can obtain free updates as they become available from our website: www.syneticsystems.com/proteus_resources.htm in the "software" subdirectory.  Be sure to check the FAQ, Tutorials and Session areas for helpful tips and pointers for getting the most from your system.


## Working with Modes


**Primary memory bank.**  This is the default mode when you first power up your system.   The display will read "Pxx", where "xx" is the currently selected program.

Note: *Proteus will always start in whatever mode you were in when it was last shut off.  So if the last thing you did before shutting the power off was to run P49, the next time you turn it on it will be ready to run that session again.*

Use:  Press the middle (**Mode**) switch until the display reads "Pxx."  Now press and release  the bottom (Select) switch; the display will step to the next program stored in memory.  Next, press and hold **Select** and notice that the display steps through program numbers in sequence, three numbers per second; after two seconds it steps through them at a rate of six numbers per second.  Release this key when you have reached the number of the session you wish to use, then press the start/stop button to begin that session.

You can cause the display to step *backwards* as well as for-wards if you wish.  To do this, just press and hold the bottom as above, and when the display starts to increment, press and

hold the *top* button to reverse the display.

***Interlude:  what happens during a session?***  The preset sessions included with your system always begin with a *soft-on* period, during which the lights and sound fade gradually (over eight seconds) into their maximum-programmed levels. The same process occurs in reverse at the end:  the lights and sound fade gently out over the same period.

If you want to stop a session before it is over, pressing the **Start/Stop** key once will cause the session to being a twelve second fadeout.  Press it twice (quickly) to end the session abruptly.

If you would like to *pause* the session at the current pulse rate, press the **mode/pause** key.  The left and right decimals will disappear as an indication that the session is paused.


Several pieces of information can be displayed during a session:

*Current pulse rate.*  The numbers you initially see on the display are the current pulse rate  of the session—notice that this often changes rather quickly.  This is always displayed as a decimal number, ranging from 0.4 to 50.0 Hz (pulses per second).

*Remaining session time.*  Pressing the **Select** (bottom) key once will toggle the display into the number of *minutes* remaining in the session.  If that number is less than one, then you will see the number of *seconds* remaining. Press select again to view the pulse rate.

*No display.*  Press the Select key again and the display will remain off for the remainder of the session.  This will help extend battery life, and eliminate the low-level "ticking" sounds associated with the flashing decimal points.

*LightFrame flash mode.*  Notice the two flashing decimal points on the left and right hand side of the display?  These indicate whether the lights are all flashing *together*  or out of phase

(red/green or left/right).  This works both with older, single-color or the included multicolor LiteFrames.


**User Mode**.  Use this when you want to control the Proteus pulse rate and pitch without the use of a PC.

Use:  press the middle (**Mode**) key until the display reads "**Usr**", then press  **Start/stop** once.  The light and sound will start an eight second soft-on sequence.  If you press it *twice* the soft-on sequence will be skipped and the program will begin at full brightness and volume.  You can now control what is happening in real time, in the following ways:

- Press and hold the **Select** key to *increment* the current flash rate from 0.4 to 50.0 Hz.
- Press and hold the **Select** key, and when the display starts to increment, press the top key to *decrement* the current flash rate from 50.0 to 0.4 Hz.
- Press the **mode** key to toggle between [LightFrame+audio] on/off and red/green (left/right). If the left and right decimals on the display are flashing left/right, then so are the lights and sound.
- Pressing and holding the two bottom buttons during a session causes the audio pitch to increment to its maximum value of 600 Hz, then roll over to its minimum - 40 Hz.


**AudioStrobe Mode**.  In order to use the Proteus to decode AudioStrobe® discs, such as the included sampler, follow these steps:

- Use the included stereo patch cable to connect the output of your CD player to the AUX input of Proteus. Make sure that the AUX input has been set for AUDIO instead of DATA input:  the middle decimal point should *not* be flashing.  If it is, press SELECT and START/STOP simultaneously to select AUDIO.

- Press the MODE key repeatedly until the display reads "AS".

· Start your AudioStrobe CD and adjust the liteframe brightness and audio volume to a comfortable level.

Note:   For best audio results, we strongly suggest that you connect the LINE output of your CD player to the AUX input of Proteus, and connect your headphones directly to your CD player.  If you do not have a line output, then connect the headphone output to the AUX input, and connect headphones to the Proteus in the usual manner.

**Download Mode**.  This **DL** mode is used *only* to transfer programs or software updates into Proteus.  To do so, perform the following steps:

· Connect the DB9 connector  of the included serial cable to an available serial port on your computer (some older models only had DB25 connectors.  If yours is like this, you will need to buy a DB9 to DB25 adaptor).

· Plug the other (stereo mini) end into the Proteus AUX input.

· Follow the instructions in the Proteus Session Editor documentation to complete the download.  (You can also find details in the Proteus FAQ section of our website at www.syneticsystems.com/proteus_resources. htm.

· During the download, the display will rapidly flicker. This indicates that the download is proceeding.  When this has stopped, press the MODE key again to return to the Primary memory bank (Pxx).  You may now select and run your new sessions!

Note:   Whenever you download new programs into Proteus, any previously stored ones are erased.  Because of this, we recommend that you leave the 50 included programs in the Primary memory bank, and download works in progress into the Utility bank.

# Additional Proteus Operating Details

**Random session.**  Selecting **P00** activates a "random" session:  every time you run it, it's different.  This is for those of you who are especially interested in the effects of novel stimulation on your consciousness.

**LiteFrame color selection.**  In order to retain compatibility with older, single-color LiteFrames, you can toggle between monochrome and bicolor display.  To do this:

- Press the SELECT and MODE  keys simultaneously.  If the left decimal point on the display is flashing then you're set for bicolor display (this is the default option since Proteus ships with bicolor LightFrames.)

**External audio/digital data switch.**  We've packed so many new features into Proteus that the AUX input jack is doing "double duty!"  It can set to be either an audio or data input.  You can toggle between these two choices by simultaneously pressing the SELECT and START/STOP (top and bottom) buttons simultaneously.

- If the middle decimal is flashing, you are set to receive DATA.
- If the middle decimal is NOT flashing, you are ready for AUDIO.

These features are only available in the **Pxx, Uxx** and **Usr** modes.  The other modes automatically select the appropriate input.

**Stop session soft/hard.**  You can stop a session at any time by pressing the START/STOP button.   As usual, you've got several choices available to you:

- If you press START/STOP once during the eight second "soft-on" sequence, the rest of the sequence will be skipped and the lights and sound will be at their maximum values.
- If you press START/STOP once after the "soft-on" se-

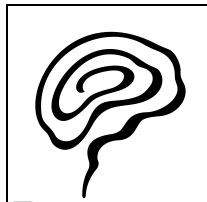quence, the session will run a *soft-off* sequence, then end.

· If you press START/STOP twice after the soft-on sequence, the session will end abruptly.

**Auto-off.**  In order to conserve battery life, Proteus will automatically shut itself off after a period of inactivity, if:

· You've selected either the Primary or Utility memory banks and have pressed no switches for 5 minutes;
· A session has been "paused" for more than 30 minutes;
· In USER mode no keys are pressed for 1 hour 45 minutes;
· In AUDIOSTROBE mode no keys are pressed after 80 minutes;
· In DOWNLOAD mode no keys are pressed nor data received for 15 minutes.

Since the power shuts off while the power switch is in the "on" position, you will need to move it "off" then "on"  when you are ready to use Proteus again.

That's all you need to know to operate Proteus!  For software updates, answers to frequently asked questions (FAQ), tutorials, and additional downloadable sessions, visit our website at Www.syneticsystems.com/proteus_resources.htm

| Mode | Key(s) pressed | Function | Notes |
|---|---|---|---|
| Pxx<br><br>Uxx | Start/stop | Starts or stops a session. | Press once during session for soft-off<br>Press twice during session for instant off<br>Press three times during soft-on to stop session |
| Pxx<br><br>Uxx | Select | Select session (increment) | Press and hold to increment session number; release when desired session is displayed |
| Pxx<br><br>Uxx | Select Start/Stop | Select session (decrement) | Press and hold SELECT key, then press and hold START/STOP to decrement session number.  Release when desired session is displayed |
| Pxx<br><br>Uxx | Select Mode | Toggle between mono-chrome and bicolor LiteFrames | Press SELECT and MODE simultaneously to toggle between monochrome and bicolor display.  If the left decimal is flashing Proteus is in bicolor mode |
| -- | Mode | Select operating mode | Each keypress steps to next mode |
| Usr | Start/stop | Turns User mode on | Pressing START/STOP once begins an 8-second soft-on phase; pressing it twice skips the soft on. |
| Usr | Select | Increment pulse rate | Press and hold SELECT to increment light/sound pulse rate from 0.4 to 50.1 hz<br>(Usr mode must first be ON) |
| Usr | Select Start/stop | Decrement pulse rate | Press and hold SELECT key, then press and hold Start/Stop to decrement light/sound pulse rate |
| Usr | Mode | Toggle between light/sound on/off and left/right | When left/right decimals are flashing in alternation, light and sound are alternating left/right as well |
| Usr | Mode Select | Increment audio pitch | Press and hold MODE and SELECT to cause audio pitch to slowly increment from 40 to 600 hz |

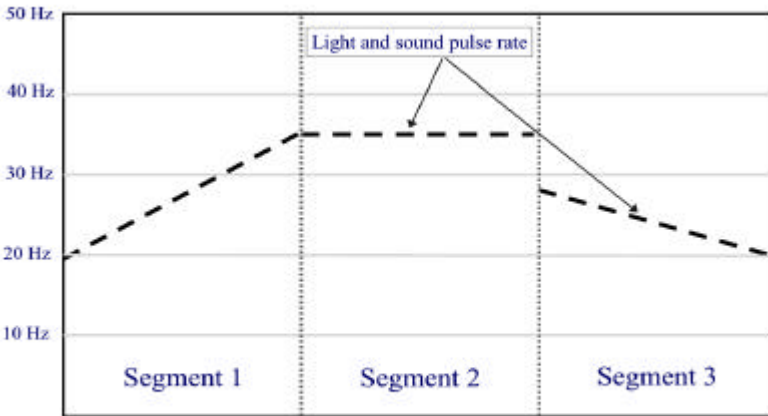Table One:  Summary of Proteus key commands

Figure One:  Session segment format

## A closer look at session structure

Proteus sessions is consists of a series of segments.  A segment includes a variety of parameters which are defined for the start and the end of the segment.  For example, a segment may be defined as being 30 seconds long, and with the pulse rate starting at 10.0 Hz and finishing at 20.0 Hz.  The pulse rate will then automatically increment in a linear fashion over the course of those 30 seconds.

The example given in Figure 1 (above) shows a typical case, where the pulse rate "ramps" up from one frequency to another, levels off for the course of the next segment, then hops to a third frequency.  Other parameters that may undergo such a smooth "ramp" include:

>       Light brightness (two independent color ramps)
>       Audio pitch
>       Binaural beat frequency (always set to the same frequency as the LFO)

A variety of additional parameters can change every such as which sound is playing, liteframe sync, whether or not sound is being modulated, and whether or not the lights and sound are running a "soft on" or "soft off" sequence.

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| Ses. # | Category | Length, min. | Name |
|---|---|---|---|
| 0 | Random session | varies | Pull-out-the-stops |
| 1 | Peak performance | 20 | Power Regenerator |
| 2 | Peak performance | 18 | Performance Intensive |
| 3 | Peak performance | 15 | Quick Break |
| 4 | Peak performance | 15 | Power Pause |
| 5 | Peak performance | 17 | Athletic Warm Up |
| 6 | Peak performance | 30 | Peak Composure |
| 7 | Relaxation | 15 | Quick work break |
| 8 | Relaxation | 25 | Mind Sauna |
| 9 | Relaxation | 16 | Quick Refresher |
| 10 | Relaxation | 35 | Regeneration |
| 11 | Relaxation | 60 | Deep Meditation |
| 12 | Relaxation | 15 | MindLab Relax 15 |
| 13 | Relaxation | 25 | Mindlab Relax 25 |
| 14 | Relaxation | 35 | MindLab Relax 35 |
| 15 | Relaxation | 45 | MindLab Relax 45 |
| 16 | Relaxation | 60 | MindLab Relax 60 |
| 17 | Learning | 10 | Quick Alertness |
| 18 | Learning | 35 | Learning With Tapes |
| 19 | Learning | 15 | Relax before Exams |
| 20 | Learning | 15 | Concentration |
| 21 | Learning | 20 | Creativity Enhancement |
| 22 | Learning | 20 | Visualization |
| 23 | Learning | 15 | MindLab Learn 15 |
| 24 | Learning | 25 | MindLab Learn 25 |
| 25 | Learning | 35 | MindLab Learn 35 |
| 26 | Learning | 45 | MindLab Learn 45 |
| 27 | Learning | 60 | MindLab Learn 60 |
| 28 | Well-being | 25 | Mind/Body Awareness |
| 29 | Well-being | 22 | Afternoon Break |
| 30 | Well-being | 25 | Deep Relaxation |
| 31 | Well-being | 18 | Goodnight |
| 32 | Well-being | 25 | Release the day |
| 33 | Visualization | 15 | MindLab Visualize 15 |
| 34 | Visualization | 25 | MindLab Visualize 25 |
| 35 | Visualization | 35 | MindLab Visualize 35 |
| 36 | Visualization | 45 | MindLab Visualize 45 |
| 37 | Visualization | 60 | MindLab Visualize 60 |
| 38 | Energizing | 15 | MindLab Energize 15 |
| 39 | Energizing | 25 | MindLab Energize 25 |
| 40 | Energizing | 35 | MindLab Energize 35 |
| 41 | Energizing | 45 | MindLab Energize 45 |
| 42 | Energizing | 60 | MindLab Energize 60 |
| 43 | Sleep | 15 | MindLab Sleep 15 |
| 44 | Sleep | 25 | MindLab Sleep 25 |
| 45 | Sleep | 35 | MindLab Sleep 35 |
| 46 | Sleep | 45 | MindLab Sleep 45 |
| 47 | Sleep | 60 | MindLab Sleep 60 |
| 48 | Pyrotechnics | 16 | Pure entertainment 1 |
| 49 | Pyrotechnics | 10 | Pure entertainment 2 |

Table Three:  Proteus Sessions

**PROTEUS LIMITED WARRANTY AND RELEASE FROM LIABILITY**

1. Proteus is guaranteed to be free from manufacturing defects for a period of one year from the date of purchase. Any defective parts will be repaired free of charge (exclusive of shipping costs) during that one year period. Damage caused by a purchaser's misuse or accident, or by fire, flood or natural disaster is not covered by this limited warranty.

When returning Proteus to the Manufacturer, purchaser should be sure to include name, address, telephone number and description of the problem. PURCHASER MUST CONTACT MANUFACTURER FOR AUTHORIZATION BEFORE RETURNING UNIT FOR ANY REASON. Contact: repair@syneticsystems.com (206) 632-1722.

2. DISCLAIMER. EXCEPT AS PROVIDED INPARAGRAPH 1 ABOVE, THE PURCHASER ACKNOWLEDGES THAT HE/SHE IS PURCHASING THE PROTEUS 'AS IS.' THE MANUFACTURER AND SELLER SPECIFICALLY DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE OR USE. THE MANUFACTURER AND SELLER ALSO ASSUME NO LIABILITY FOR ANY LOSS OR DAMAGE ARISING FROM THEORIES OF TORTIOUS CONDUCT, INCLUDING NEGLIGENCE AND STRICT CONDUCT.

3. Release from Liability. The purchaser is fully aware that Proteus is an experimental device that provides audio and visual stimulation. Because it is experimental, the purchaser understands that Synetic Systems, Inc. is not certain that it is suitable for all applications or users, each of whom may be affected differently by the devices because of individual physical and emotional makeup. Persons who have a history of seizures, hallucinations or other physical or mental problems should use Proteus only under medical supervision.

The purchaser further understands that Synetic Systems Inc., its agents and employees, will not be held liable in any way for any occurrence of any kind and nature whatsoever in connection with his/her use of Proteus, or another person's use of Proteus, that may result or ostensibly result in physical or emotional damage to the purchaser or others. Furthermore, in consideration of and part payment for the Proteus, the purchaser hereby personally assumes all risks in connection with his/her use of the product, and shall advise other users of the product of the experimental nature of this device, especially regarding use by those with a history of seizures. Furthermore, the purchaser assumes all risks in connection with use of the product by other individuals.

4. Limitation of damages. If, notwithstanding the foregoing, there should arise any question of liability on the part of the manufacturer or seller, the purchaser agrees that such liability should be limited to the cost of replacement of the product.

5. Purchaser representations. The purchaser represents that he/she is of legal age and legally competent, and understands that the terms set forth herein are contractual and not mere recital. The purchaser has read or will fully read the product Instruction Guide before using Proteus.

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