The MindPlace Company Inc.

P.O. Box 833, Eastsound, Washington 98245

www.mindplace.com

PROCYON AVS
AUDIO VISUAL SYNTHESIZER

WWW.MINDPLACE.COM

USER'S GUIDE AND MANUAL

REVISION 1.0

Procyon

Audio-Visual Synthesizer ™

User's guide and Reference

I. Introduction

Congratulations! You have just purchased the most advanced personal light and sound system available on the market today. The *Procyon Audio-Visual Synthesizer*™ is a powerful tool for exploring a wide range of interesting and beneficial states of awareness, and we think you will find it very helpful when used regularly.

The Procyon includes 50 unique, pre-programmed light and sound stimulation sequences (called *sessions* and sometimes *programs*) within its internal memory, each designed with a specific goal in mind. We suggest that you first work with those sessions which best suit your needs before exploring further. All sessions were designed to support the mental processes required to integrate the lessons of daily life and we believe you will will help make your inner travels more productive.

The Procyon also provides you with maximum flexibility, because you can create your own sessions using our free *Procyon Editor* software for Windows (available from www.mindplacesupport.com).

You can mix your own audio sources (CD's, MP3's, etc.) with the internally synthesized audio tones. And the Procyon is the first light and sound system available that includes compact-disc quality digital audio. Now you can transform the experience of your favorite music, or enhance the effects of learning, personal growth, and imagery-based audio with the powerful effects of light and sound.

READ THIS BEFORE USING PROCYON

Procyon 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, etc.

Consciousness as art-form?

Procyon's ability to create and fluidly control a palette of millions of colors, and to precisely synchronize this flowing rainbow with music and other audio sources presents the opportunity to create a new kind of consciousness-altering artform. Be sure to check our site (www.mindplace.com) frequently for the latest updates and audio-visual artworks!

Color, mood and awareness

It has long been known that color can have a profound effect on cognition and perception. That's why colors such as blue and green are often used in hospitals and prisons—due to their calming effects. Research has shown that pure colored light can achieve this same goal: for example, red light is more effective at inducing mental and physiological activation, while blue light reduces such activation and can instill a sense of deep calm. Yellow, on the other hand, appears to help the mind focus while studying and can allow access to "peak performance" mind-states. The Lumatron® is an example of a system which uses colored, flickering light in a therapeutic context (though of course we make no medical claims of any sort for the Procyon).

It is possible to use the Procyon to produce pure, jewel-like colors which do not flicker at all. It can also play sequences which unfold gradually, or shift rapidly from hue to hue. When this is done in the range of about 4 to 20 times per second, especially unusual visual and psychological effects can be produced, inducing the illusion of complex, shifting geometrical imagery. This imagery can be so compelling that the mind clears of extraneous thoughts and distractions and the other stressors of daily life. In this way the Procyon is like a form of "accelerated meditation."

Benefits

We've created the Procyon as an experimental tool for the exploration of a wide range of colored light (and sound)-induced alternate states of awareness. And, although we hope you will take advantage of our software tool for creating your own works of "mind-art" and other applications, we've also included a variety of preset sessions to get you started. Sessions are grouped into these general categories:

Tranquility and **calming**. These sessions use mostly "calming" colors, especially blue and green, but also shades of purple and occasionally other colors for visual variety. They tend to change slowly and are intended to lead the mind towards a state of tranquility.

Before bed. Similar to the calming sessions, but even slower and again focused on blue and green light and their combinations. The goal is to help clear the mind before bed. Some users have reported having unusually vivid dreams with these sessions.

Learning. Most of these are based upon the twilight learning and super-learning paradigm, and are intended to lead your mind into a light trance-like state known as hypnogogia.

Peak performance. Mostly "middle of the rainbow" colors and frequencies associated with the goals of mental activation and peak performance; often used for learning and sports preparation.

Energy/rejuvenation. More active; patterns shift rapidly and are intended to prepare the mind and body for activities such as sports and other physical activities, or before meetings and tests. Perfect for use during breaks from work and for study.

Visualization/artform/entertainment. These sessions demonstrate the more purely aesthetic aspects of the Procyon, and are intended to induce more complex (even hallucinatory) visual imagery, and as preparation for exploring altered states of awareness.

Features

Compact Full-Color Personal Display. Our new *GanzFrames*[TM] design uses state-of-the-art surface-mounted solid-state optoelectronic emitters which generate and mix pure red, green and blue light. With 255 brightness levels for each color, there are literally millions of colors to choose from.

Ganzfeld feature. A *Ganzfeld* is a field of pure color which does not flicker. With Procyon, you can select a favorite color and use it for color meditation, for example. Of course, the colors can transform into another hue at any rate you choose.

Independent color channel programming. Each color channel (red, green, blue) can be assigned its own brightness and frequency, for creation of complex visual effects and mind states.

Large internal program store. More than 1500 segments, which can be divided between up to 250 sessions, stored in internal flash memory..

USB port. Transfer new sessions into your Procyon, update its operating system, and back up your current sessions to your PC. Control the Procyon in real time from your PC or biofeedback system.

Digital audio input/output. Another Procyon first: low-noise, compact-disc quality audio, for more precise control of internal and external audio mixing, and virtual elimination of "clicking" from the lights.

Internal audio synthesizer. Creates binaural beats, locked to the frequency of one of the three color channels.

SynchroMuse[TM]. This powerful new function synchronizes audio content on encoded compact discs with internally stored sessions. The experience is similar to AudioStrobe®, only in full color.

AudioStrobe® compatible. Play your legacy AudioStrobe-encoded CDs by selecting this function.

Multiple visual waveforms. Choose from pulse, sine, triangle.

Multiple visual effects. *Phase-shifting* creates a constantly changing, complex range of colors, while *pulse-width-modulation* creates "hard-edged" visual effects. Mix flicker with ganzfeld for subtle "shimmering" effects!

II. Setting your system up

Your Procyon package should include the following items:

- Procyon console
- *GanzFrames*[tm] personal display
- Stereo headphones
- USB "mini" to standard USB cable
- Stereo audio patch cord
- Carry case
- Manual

You will also need three "AA" alkaline batteries, not included, for standalone operation. If you connect it to a PC, then your Procyon will be powered via the USB cable.

Please refer to the illustration blow while setting your system up.

Step 1: Install the batteries

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

- Plug the GanzFrames gently into the top of the console. Notice that the plug fits in only one way.
- Plug the headphones into the correct jack on the right side of the unit.

Step 3: Select and run a session

- Turn the unit ON by pressing the on/off button. The LED display will briefly flash the word "on" and then show 000. This is the "random" session.
- Press the Up/Down key to select a session. See pages 18-22 for a description of internal factory sessions. While holding the key the session number will initially advance slowly, then accelerate (like setting a clock radio). To cause the session number to decrement, press the Up/Down and Start/Stop button at the same time.
- Press the Start/Stop button once to start a session. The display will briefly flash the word "run", then display the session number again.
- Use the dials at the top of the unit to adjust the audio volume and light brightness. We recommend starting at low settings and gradually increasing them to optimum levels.
- To stop the session, press the Start/Stop button once. The display will flash "End" one time, then the session number.

CAUTION: Do not open your eyes while wearing the GanzFrames. The LEDs are very bright! Do not start a session at high brightness levels unless you are certain that you will find it comfortable.

III. Using your Procyon

How to have a perfect session

Finding a comfortable and quiet setting is an important ingredient for having an ideal session with your Procyon. It can also help to loosen any tight clothes, belts, etc.

- If your goal is to unwind during your session, then lying down can also help, but is not essential.

- If you think you might fall asleep during your session, turning the light out helps, since some ambient light would normally make its way to your eyes from the sides of the GanzFrames and slightly wash out the intensity of the colors. Choose a session with a slow pulse rate and mostly blue-green hues is especially pleasant and helpful in this case. Using just the GanzFrames alone while listening to your stereo (or to nothing) would probably be most comfortable, unless you wanted to use binaural beats; you can use loudspeakers if your head is between them.

- If your goal is a short relaxation break, then sitting in a comfortable chair is ideal. If you are taking a break at work, short sessions seem to give the best results, around fifteen minutes. A longer period could put you to sleep, if you are at all tired, by removing the environmental cues which would normally keep you awake.

- To experience a clear-headed, meditative state, use one of the "meditation" sessions.

- If you are feeling tired, try an "energize" session. Their accelerating tempos function in a manner similar to listening to music with similar tempo changes.
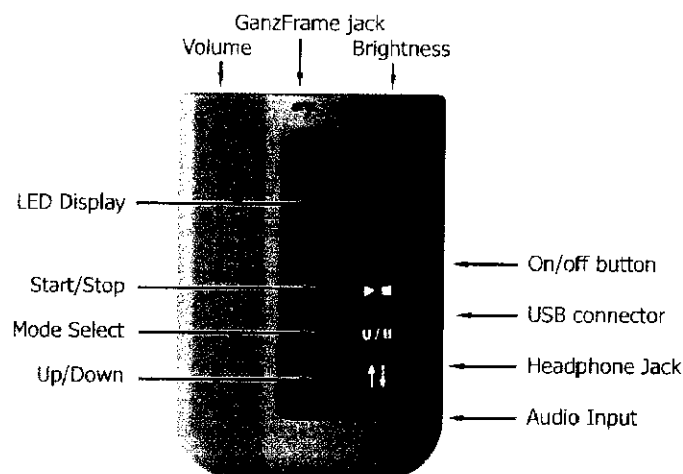
On/off and power-saving

The system is turned on and off via the button on the right side of the console. In order to save power in case you forget to turn it off, it will automatically turn off in the following manner:

- In Session mode (display shows three digit session number): after three minutes of inaction.
- In PC, dL1 or dL2 modes, after 20 minutes.
- In AS or DAS modes, after 80 minutes (allowing time for a full CD to play before shutting off).

Buttons, connectors, and display

The three buttons on the front panel have the following functions:

The TOP button is the START/STOP button. Just press and release the button once, briefly, to operate.

GanzFrame jack

Volume | Brightness

LED Display

Start/Stop

Mode Select

Up/Down

On/off button

USB connector

Headphone Jack

Audio Input

The MIDDLE button is for selecting a *mode* (see page 13). When you turn the system on it automatically sets itself to SESSION mode, which displays a three digit session number. Each time you press it, it steps to the next mode, displaying the following sequence:

Session (SES) > PC > dL1 > dL2 > dAS > AS > SES.

The BOTTOM button is for selecting a specific session, while in Session mode (the display shows three digits).

The ON/OFF button is located on the upper part of the right side of the console.

There are two dials on top of the console. The LEFT one is AUDIO VOLUME, and the RIGHT one is LIGHT BRIGHTNESS. The audio volume affects only internal audio, not external audio; use your CD/MP3 player's volume control to set the proper balance between the two.

We recommend that you set the dials to a low level before starting your session, and increase them slowly until you find the most comfortable setting.

There are four connectors on the Procyon:

On the TOP of the unit is the GanzFrame connector. Note that this socket is keyed to fit in only one way with the GanzFrames plug. Like all miniature connectors, it is somewhat delicate; do not attempt to force the GanzFrame plug into it. If it doesn't seem to fit in one orientation, flip it over and plug it in the other way.

On the RIGHT SIDE of the console, just below the start/stop button is the USB jack. Use the included (or any standard to mini USB) cable to attach it to your PC (but do not do so until you have installed the Procyon driver and software). This connector is also used to communicate with the PreSage biofeedback system using a

special cable.

Below the USB jack is the HEADPHONE jack. Plug the included phones into this. You can use other headphones as well, though the Procyon may not have sufficient power to drive larger, "studio" style headphones.

The BOTTOM jack is for audio input. Use the included stereo mini (3.5 mm) cable to connect the output of your CD or MP3 player to this if you would like to mix your music with a session, or if you are using AudioStrobe or SynchroMuse encoded CDs. You can also plug the line output of your stereo into the system here, though you will need a stereo phono-to-3.5mm stereo cable (Radio Shack, for example, usually carries these).

Selecting a session

Your system has been pre-programmed with a number of sessions of various lengths and suggested applications. You can find a list of these on pages 18-22.

- Choose a session from the session list at the end of this manual, noting its associated number.
- Turn the Procyon on and use the up/down button to select that number.
- Press the Start/Stop button to begin your session.

The 'random' session

Session "000" is random—that is, the sequence and length are different every time you run it. Use this for pure entertainment, and to gain a sense of some of Procyon's color-mixing capabilities.

Brightness and volume

The function of these controls should be clear. Note the symbols printed on the case next to the dials: headphone on the left and brightness on the right. The long thin triangles printed next to these symbols indicate level: moving the dial towards the thin part (to the right) will reduce audio volume and light brightness.

Modes

There are several different "modes" in which your system can function. When you turn Procyon on, it is automatically in SESSION MODE (**SES**) and displays the currently selected session number. Each time you press the mode button, it will step through the others in sequence; their functions are as follows:

PC. Use this mode when creating your own sessions, or experimenting with color mixing. Normally, you would use our Procyon Editor software for Windows, which may be downloaded from the Procyon section at http://www.mindplacesupport.com. For more information about how to create sessions, see the Procyon Editor Programming Guide (also available on our site).

dL1 This is for transferring sessions or albums (collections of sessions) to the Procyon's internal memory. It is selected automatically when transferring this information via the Procyon Editor software and is provided for use with potential future open-source software.

dL2 Choose this mode if you are transferring sessions from a compact disc; this is useful when a user does not have a PC available but would like to update their system. Also used with SynchroMuse-encoded compact discs.

dAS (Digital Audio Synchrony) Used when listening to SynchroMuse® encoded compact discs.

AS AudioStrobe® compatibility mode; use when playing AudioStrobe or other high-frequency encoded compact discs.

Connecting to a PC

We've included a USB cable so you can connect Procyon to your PC. Before doing so, be sure to download the USB driver from the Procyon section of http://www.mindplacesupport.com and install it before connecting your system. In addition, you will need to download and install the Procyon Editor software and its associated User's Guide (the zip'd file Procyon Package includes all three).

Connecting to the PreSage® biofeedback system

It is possible to control the Procyon using the PreSage biofeedback system; in order to do so, you will need a special adapter cable, available from www.mindplace.com or your Procyon dealer. In order to use this feature when it becomes available, you will need to install the latest Procyon firmware from our support site www.mindplacesupport.com.

What happens during a session

Sessions are made up of a number of *segments* of varying lengths. During a session, these play back sequentially. A segment includes beginning and ending values for all of the parameters that can change during that segment.

For example, the first segment may last for ten seconds, have only blue light selected, and the light may start by being turned completely off (brightness=0) and end the segment turned completely on (brightness=255). During the course of the segment, you will notice that the light gradually grows brighter. The frequency may be set to ramp from 14.0 Hz down to 8.0 Hz, and will be perceived

to start relatively quickly and gradually slow down. All such ramps are linear—that is, straight lines.

Color, mind and mood

Color is known to have a strong effect on mood and consciousness. For example, red light tends to be stimulating and activates the mind and body, while blue and green light are soothing. For this reason, pale blue and green light are often used in hospitals and prisons to help calm the inmates. Yellow light is associated with "peak performance" activities, and is useful for achieving a relaxed yet alert state of mind.

Colored light has sometimes also been used therapeutically (though of course we are not suggesting that you use this system for medical applications) in the form of color therapies, such as the Lumatron® colored strobe system.

Mandala imagery

Most people notice and enjoy the complex, shifting, mandala-like imagery they see behind their closed eyelids during flicker stimulation. Even single-color flicker stimulation can generate more than one "virtual" color. But the use of more than one color dramatically enhances this effect, and with all three primary colors now present, the effect can be remarkably beautiful, helping to transport you to a splendid inner world.

Red, green and blue light waveforms

Most of the light/sound systems on the market today use a single visual waveform, the *pulse* waveform. This switches from maximum brightness to off almost instantly. Although this can induce more vivid imagery, it can also tire the eyes. In addition to pulse waveforms, the Procyon also offers pure *sine* (which gently and smoothly moves from on to off), and *triangle* (which moves more briskly from on to off) modulation.

Mixing colors: phase shifting, pulse width modulation

A broad range of color-mixing effects possible with additional features of the Procyon. *Phase-shifting* means that the way in which each colored wave of light mixes with the others changes over time. For example, if red and green are "waving together" the colors mix and produce a perceived yellow color. Now imagine that the red starts first, followed by the green: the overall perceived color starts out as red, then transforms first to yellow, then to green. Now, imagine this happens multiple times each second, and you can begin to visualize the color-mixing potential of the Procyon.

From flicker to ganzfeld

A *ganzfeld* is a field of light which fills your visual field. Best known for its use in parapsychological studies (where typically half of a ping-pong ball is placed over each eye, then illuminated by a steady red light), our ganzfeld feature allows the creation of such fields in a wide variety of colors.

Flicker can also be mixed with the steady light-field, creating a range of subtle, easy-on-the-eyes shimmering effects—perfect for those with sensitive eyes or who otherwise cannot tolerate the intense flickering produced by most light/sound machines.

Internal audio synthesis

The internal audio synthesizer is currently preset to create binaural beats, which lock onto any one of the three color channel frequencies.

Audio mixing

You can mix external audio with Procyon's internal synthesizer. Use your CD or MP3 player, or any other audio source with a headphone output. The audio volume control on top of the unit is used to change the internal volume; use your player's headphone volume control your source. In this way you can mix the two in an optimum manner.

Advanced: external control

The Procyon can be controlled in real-time from a PC or other devices via its USB port. The Procyon Editor controls in in real-time ("PC") mode when you test segments or sessions from your PC. We've also written a beta Active-X control which is available on www.mindplacesupport.com for those interested in developing PC applications to control it.

Online resources

Be sure to visit www.mindplacesupport.com for the latest documentation, sessions, tutorials, etc.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received,

including interference that may cause undesired operation.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.