



User's Manual

Preface

We are sincerely appreciating our customers for purchasing "NeuroHarmony", a portable Neurofeedback apparatus produced with our own technology for the first time in the world. You will make an exploration to your brains by using "NeuroHarmony", a portable Neurofeedback apparatus integrated as a result of researches in the brain for forty years. As an undeveloped field, the brain is known to the last thesaurus of human being. All our activities for thinking, feeling, talking, analyzing, and moving are controlled and managed by the brain.

In case the brain gets abnormal, unsound functions abovementioned can cause mental disorder and diseases, and accordingly physical indisposition can be followed. It is techniques of Neurofeedback that can prevent in advance abnormality of the brain in the most ideal and efficient way and can improve potential capabilities of the brain most effectively.

Minute electric signals are generated in the brain when information is exchanged between about 15Billion of brain cellular and Trillions of nerve fiber tissue. The electric signal is called a brain wave, and conditions of brain activity and brain activation can be perceived by inspecting condition of brain wave. as controlling wavelength range is decided according to consciousness and also each part of the brain has its own individual function. Updated technology of science is called Neurofeedback and also called brain wave biofeedback, which can help examinees adjust information on brain wave of themselves and improve brain function by themselves to manage effectively mental and physical conditions by activating necessary brain wave with above information.

On the basis of Conditioning Response of Doctor Petrovich Pavlov, Nobel prize winner, and Operant Conditioning of Doctor Skinner from Harvard University, study of Neurofeedback started about 100 years ago and research and development of many scientists completed this technology of science. After Doctor Joe Kamiya from Chicago University managed to test successfully Neurofeedback by using brain wave against human being for the first time in 1958 and Doctor Miller from Yale University and Doctor Sterman from UCLA verified effects of Neurofeedback in 1960s, a lot of scientists including physiological psychologists, neurologists, brain physiologists, physicists, and Doctors spent more than 40 years in researching and developing. As a result of clinical demonstrations of Neurofeedback for more than 40 years, it was verified that this is not a simple training, but this can improve structure of the brain, make brain function most suitable and brain efficiency maximized, improve health of individuals and maximize capabilities by means of self-regulating adjustment, reconstruction, and reorganization of nerve cell & nerve tissue of the brain.

"NeuroHarmony", up-to-date portable apparatus for measuring brain wave, will contribute to improvement of brain function and mental & physical condition by providing most suitable environments for Neurofeedback after most precise measurement & analysis of characteristics of your brains.

Most of the information on a living body is controlled and organic activities of each part of a living body is adjusted by the brain. It means that health of the brain is a basis of general health condition. If you continue to train only for 15 to 20 minutes everyday or 3 times a week, you will feel effective immediately and keep your physical and mental condition more stable and

comfortable.

In case you use four kinds of Neurollarmony products such as health, studying, sports and meditation for your training, you will get much concentrated capability, will be free from insomnia, uneasiness and stress, will protect yourself against imbecility and also will be lost in deep meditation. Studying capabilities will be maximized, competition capabilities in various fields of sports will be increased and endless potential capabilities ranging from daily activities to the art world and creative fields by maximizing your capabilities will be developed as much as possible.

Why don't you start to go on an expedition to your brains?

1. Components and Functions

1) Components

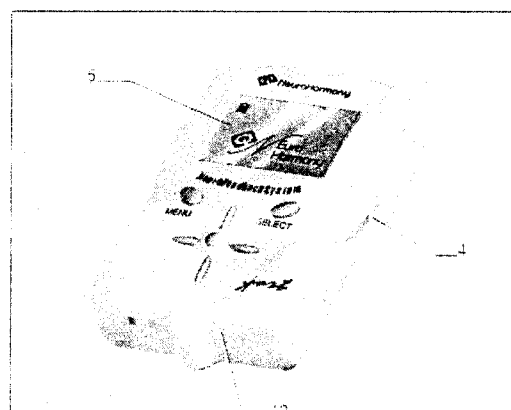
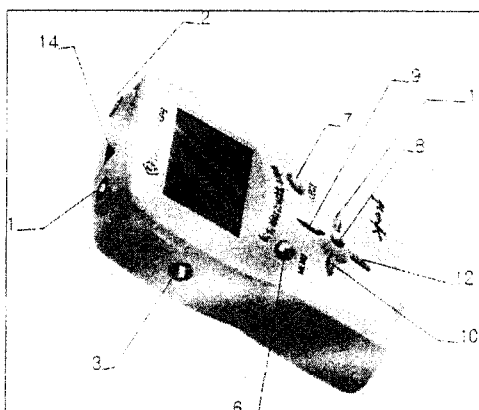
This product consists of components as shown below. If you find any components are missing or defective, please contact the branch where you bought the product or the Customer Support Center in our Headquarters (Tel : 080-244-2488).

- 1 Mainframe
- 1 charger
- 1 headband
- 3 extra electrodes
- 1 earphone
- 1 serial communications cable
- 1 portable device necklace
- 1 copy of the user's manual

2) Title and Function of Product

(1) Mainframe

This mainframe is a compact type of electroencephalogram gauge (EEG) and has several onboard functions to enable neurofeedback training by expanding the brain wave signal measured from the headband. It is powered by battery and has a function to display brain waves.



- ① Earphone connection terminal : Enable you to listen to sounds by connecting earphones or headphones with the portable device. It is black.
- ② Headband connection terminal : Measures brain waves by connecting the headband to the portable device. It is red.
- ③ External sound input terminal : Enhances the training and learning effects by

neurofeedback brain wave training or sound training while listening to a tape or other sounds of the user's choice by connecting to external sound devices.

- ④ Volume button : It adjusts the volume. Volume is increased by rotating downward and decreased by rotating upward.
- ⑤ Liquid crystal display screen : Shows the of progress
- ⑥ Menu button: Used to move to other menus.
- ⑦ Select button : Used to select the function you require.
- ⑧ Power button : Device to turn the power on or off.

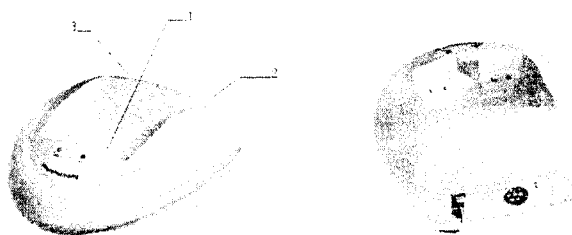
For POWER ON: Press for more than 2 seconds until you see the LOGO screen.

For POWER OFF: Press for more than 2 seconds until it returns to the initial LOGO screen and displays POWER OFF, or wait until the earphones beep.

- ⑨ Up button : Cursor moves up one menu.
- ⑩ Left button : Cursor moves to the left one menu.
- ⑪ Right button : Cursor moves to the right one menu.
- ⑫ Down button : Cursor moves down one menu.
- ⑬ Electrodes for communication and charging: These connect the mainframe to the charger to charge the battery and to a PC for communication.
- ⑭ Portable device line connection ring : This is a ring which connects to the necklace.
- ⑮ Battery cover : Open when replacing the battery. (Only needed for A/S)

(2) Charger

The charger charges the mainframe and connects the mainframe to the computer. Power can be automatically adjusted between 100V-220V, and can be operated both in 50Hz (Europe) and 60Hz so that it can be used in any country in the world.

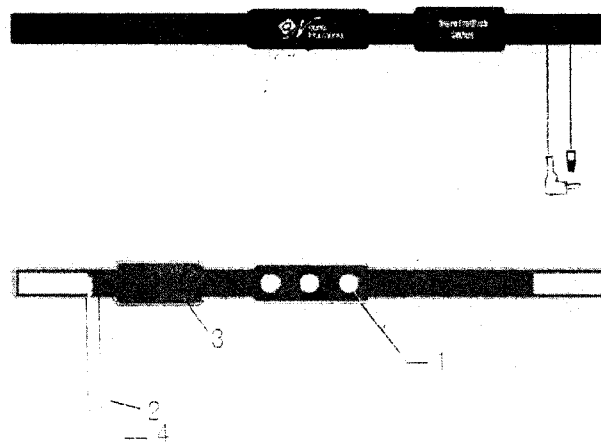


- ① Mainframe connection electrode : It connect to ⑬ of the mainframe to enable communication with a computer and charging of the battery.
- ② AC power outlet : power cable to be connected to alternating current when charging.
- ③ Communication cable connection terminal : It is a cable connection terminal connected to the serial communication port of a computer which transmits the brain waves from the mainframe to the computer. Since a 9 pin communication cable is provided, if the communication port of your computer is 25 pin, please purchase an adapter to convert from 9 to 25 pins. Do not allow power surges when you connect the cable

to the charger or computer. Set the direction and slightly plug in so that it will break down.

(3) Headband

The headband is a device to measure the brain waves on the forehead. Since very thin printed circuit boards (PCBs) and a very thin amplifier are inserted, please pay special attention not to bend it severely when you use or store this product.



- ① Electrode : This is an electrode to measure brain waves, and consists of 3 parts. Since it is gold plated, it conducts electricity well. If the gold plate falls off due to long periods of use, promptly replace it with a new electrode. It is a button type. Slightly pull it out when you replace it. When you put it on, make sure to place the electrode on the center of the forehead.
- ② Ear electrode : This is a tong type electrode that connects to the ear, and acts as a standard for the brain waves measured.
- ③ Amplifier : This is an amplifier which primarily amplifies the measured brain waves. Since the circuit boards that are connected between this amplifier and the electrode are in very thin film, the electric wires can be easily cut if you frequently fold and unfold the headband. Therefore, please take special care when handling the headband.

☞ **Cautions)** When you store the headband, do not fold it, but roll it the same way you wear it on your head. If you frequently fold and unfold the headband, the electric wires in the headband can be cut and it will be impossible to measure the brain waves.

2. Preparations for Use

1) Connection of Parts

① Power Off

- Make sure to power off when connecting any parts.

② Connect headband

- Connect the headband to the headband connection terminal of the portable device. Make sure to use the correct connection terminal (yellow) to avoid confusion with the earphone connection terminal.

③ Connect the earphone and external sound input terminal.

- Connect the earphones to the earphone connection terminal, then put the earphones in both ears. If you want to use external sound, connect the external sound to the external sound input terminal and check whether the sound is being properly received.

2) Selection of Mode

The NeuroHarmony portable device provides 2 training modes and 2 additional functions. The training modes consist of the neurofeedback training mode and the sound stimulation training mode. The additional functions are timer and lighting functions. Since the neurofeedback training mode needs to measure brain waves, you can use it only when you are wearing the headband.

training modes	neurofeedback training mode	brainwave measurement	headband
		neurofeedback training	
	sound stimulation training mode	binaural beats	non headband
		natural sound	
additional functions	timer functions		
	lighting functions		

Table [1] The functions of NeuroHarmony

① Power On

- Press the power button for 2~3 seconds to power on and to display the initial LOGO screen.



② Select neurofeedback training mode (mode for wearing the headband)

- Press the menu button to display an image of a person wearing a headband, which represents neurofeedback training mode. This is the default initial mode. Make sure to wear the headband if you select this mode.



(A) Battery display window:

The battery display window on the upper right screen shows the battery charge of the portable device. When there are 3 bars, the battery is fully charged. As the battery is used, the number of bars decreases to 2 and then 1. When the bars all disappear, the battery will be empty and you cannot use the portable device. In this case, you must connect the portable device to the charger before use.

(B) Mode of wearing the headband:

The person displayed in the left part of the screen shows the mode of wearing the headband.

(C) Display time:

The number in the bottom left of the screen is the length of time you have been trained for measured in minutes. Time your training correctly by checking this window.

③ Select the sound stimulation mode and additional functions (no headband mode).



- If you want to use the additional functions or sound stimulation training without neurofeedback, press any direction key to change the display to an image of a person wearing no headband. For this mode it is not necessary to wear the headband.

④ Select Mode

Press the select button to choose the mode you want.

3) How to Wear the Headband

① Clean your forehead

- You should remove hairs or other foreign substances from the place on the forehead which will be in contact with the headband electrode and also clean the electrode itself. If the electrode is not clean, wipe it with alcohol using a soft cloth or tissue. If sweat or cosmetics are left on the forehead, it may cause the electric conductivity of the electrode to fall. Since electric conduction may be weak in some people due to dry skin, slightly wipe your forehead with saline solution to improve the electric conduction of the electrode.

② Put on the headband

- The headband has 3 electrodes and 1 ear electrode. When you put it on, make sure the letters "NeuroHarmony" imprinted on headband are showing, as the amplifier will then be located on the upper part of the left ear. **The middle electrode of the headband should be located in the center of forehead.** If the middle electrode of the headband is not located in the center, but in the left or right side, the brain wave signals of the left and right brain will not be properly measured.

③ Connect ear electrode

- Connect the ear electrode to the left ear.

④ Adjust the strength of the headband

- If you tighten the headband too much and use it for long time, you may get a headache. If the headband is too loose, the electric conduction between the electrode and the forehead may fall so low that the brain waves cannot be properly measured. Therefore, you should properly tighten the headband.



3. Neurofeedback Training Mode

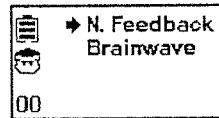
Neurofeedback training mode differs, as shown in table [2], depending on the NeuroHarmony product model. You should check which model your product is and check the training mode accordingly. Since the different modes in the different models all have their own unique effects, you should select and use the one that you really need.

	Health	Sport	Meditation	Study
Relaxation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attention Training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentration Training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Awakening			<input type="radio"/>	
L/R Balance	<input type="radio"/>			<input type="radio"/>
Refresh		<input type="radio"/>		
Self Control		<input type="radio"/>		
Memory				<input type="radio"/>
Creativity				<input type="radio"/>
Meditation-1	<input type="radio"/>		<input type="radio"/>	
Meditation-2			<input type="radio"/>	
Meditation-3			<input type="radio"/>	

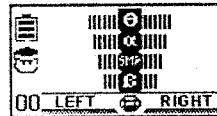
Table [2] Types of Training Mode for each Product

1) Measure Brain Waves

When you select Neurofeedback training mode, you will see a screen where you can select the "N. Feedback" and "Brainwave" function as follows.



It is important to check whether the headband is being worn properly and that the brain wave is being measured properly. Accordingly, use the direction button to place the cursor on "Brainwave" and press the select button.



Then, in 3 seconds, you will see the strength of the brain waves for the left and right brain in a bar graph as shown in the figure. The strength of the brain waves frequently moves to the right and left. From the center, the right bar represents the brain waves of the right brain, and left one represent the brain waves of the left brain. From the top, it represents the theta (θ) area, the alpha (α) area, the SMR area and the beta (β) area. The rotating square within the circle in the lower middle part means that the brain waves are being properly measured. Refer to table [3] for brain waves.

EEG frequency band	frequency(Hz)	state
Delta	0.1 - 3	deep dreamless sleep
Theta	4 - 7	sleep
Alpha	8 - 12	relaxed state
SMR(Low Beta)	12 - 15	relaxed yet focused, integrated
Midrange Beta	16 - 19	thinking, aware of self & surroundings
High Beta	20 - 39	alertness, agitation
Gamma	40 - 60	thinking, integrated thoughts

Table [3] Brainwave

If you are using a mobile phone, it is impossible to analyze the brain wave frequencies or to save the measured brain waves. As shown above, it is only possible to indicate the current of brain waves for each band. To more closely analyze the brain waves or to save the measurements, you should connect the portable device to a PC and measure

The reward bar should be higher than the standard line, and the inhibit bar should be lower than the standard line. You can hear a ping through the earphones if this condition is satisfied. This signals that the brain functioning has been successfully adjusted as you required by rewarding necessary brain waves and inhibiting unnecessary brain waves.

The purpose of Neurofeedback training is to continuously make this sound.

When the condition is satisfied, you hear a ping so that the brain is aware that this condition is satisfied. The brain unconsciously tries to maintain this state by itself. The function of the brain is normalized and developed by this self-adjustment action.

(2) Training Time

Since Neurofeedback training has a very strong effect, it is very important to select the proper training mode. About 15 minutes to 20 minutes is proper for one training session. You should be careful not to train for more than 30 minutes. This is because the brain is such a sensitive organ, and continuous training of the same type may make you feel too tired and may even cause adverse effects. In addition, you can definitely feel the effects of Neurofeedback even if the training does not last long. It is good to train every day as is required, but the effects will still last a long time even if you only train 3 times a week. You can train at any time of the day.

(3) Training Attitude

It is better to move as little as possible when you are doing Neurofeedback training. The electric signal measured on the head not only includes the electroencephalogram (EEG), which relates to the activities of nerve cells in the brain, but also the EMG, which relates to muscle movements. Since EMG has a bigger potential difference than EEG, when you make big body movements, the EEG signal will become inaccurate due to the EMG generated at this time.

Sit down comfortably and take 3 - 5 breaths to relax the body and remove all other thoughts from the mind. Then comfortably gaze steadily at the liquid crystal screen.

Concentrate your attention on whether the inhibiting bar falls below the standard line.

It may be more effective to close your eyes during this process. This will be different for each person, so you should find which is more effective for you.

When you train with your eyes closed, concentrate on the ping.

Once you hear a ping, comfortably fix your eyes on the crystal liquid screen, and adjust your mind so that the inhibiting bar stays below the standard line. The brain adjusts by conditioned reflex to maintain this ping. When you hear a continuous sound, observe and remember this state.

Each type of training will generate a specific feeling. After repeating that type of training several times, you can become aware of this state and enter into it by yourself when necessary.

What is most important here is a comfortable mind and body. Don't become tense or tired. If you feel strained, it is recommended that you take several breaths to relax yourself. Try to maintain a comfortable mind state with no other thoughts during the training. It is good to look at your breath, concentrate on the ping, or concentrate on another thing that works for you.

(4) Types of Training

Now, let's examine each training mode.

■ Relaxation Training

Purpose : To relax you when your muscles or mind are too tense, uncomfortable or excited.

Effects : Relaxes your body and mind by stabilizing the brain waves, which leads your mind to a comfortable state.

Applications : When you want to relieve stress, settle down excitement, obtain mental stability, take a sleep, take other training, when you feel tired, or before meditation training.

Methods : Concentrate on your breathing after taking 3 - 5 deep breaths, and put all other thoughts out of your mind. Try to feel at home. Once the ping begins, concentrate only on the ping sound and keep feeling relaxed. As your tension goes away and you feel comfortable, the brain waves maintain a stable state and you will hear the bell sound.



■ Attention Training

Purpose : To improve attention and concentration ability by awakening brain waves and helping you to reach the activation state.

Effects : The attention state is the state where the brain is awakened to start an activity. It can be regarded as a preparation state for commencing any activity. This is different from the state where the brain is only concentrating on one thing. It is comparable to when a cat halts all movement and thought and carefully observes the movements of a mouse before starting to catch it.

Accordingly, it relaxes your mind and body to some degree and maintains a stable state, while at the same time giving vitality and activating the brain to awaken. It is very effective for the health and development of the brain. In particular, it reinforces the activities of the right brain and improve creativity and sensitivity, achieving a cheerful and optimistic mental state.

Applications : For preventing various kinds of mental diseases, when you grow restless, before full-scale mental activities such as studying, for learning and exercise, when you are tired, before and after other training, before and after meditation training.

Methods : Take 3-5 deep breaths and concentrate on your breathing. Put all other



thoughts out of your mind and get comfortable.

Once you hear a ping sound, concentrate only on that ping and stay comfortable. If you are too strained and the training is not working well, take relaxation or rest training for 5 minutes before starting this training.

■ Concentration Training

Purpose : To improve the power of concentration on only one thing by fully activating the brain wave activities.

Effects : Concentration state means the state where the brain commences full-scale activities and is only awake so that it can concentrate on one thing. This is the state where the brain pays attention to only one thing and each side fulfills its particular role. Accordingly, it is very effective in raising work activity efficiency. In particular, it reinforces the activities of the left brain and enhances language ability, logical ability, reasoning and intellectual activities.

Applications : For preventing various kinds of mental diseases; during full scale mental activities, including work, learning and movement; when you are depressed or cannot concentrate; before meditation training.

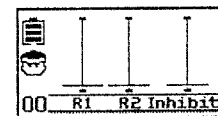
Methods : Take 3-5 deep breaths and concentrate on your breathing. Put all other thoughts out of your mind and get comfortable.

Once you hear a ping sound, concentrate only on that ping and stay comfortable. If you are too strained and the training is not working well, take relaxation or rest training for 5 minutes before starting this training. If you are relaxed, but the training is not working well, start this training after attention training for about 5 minutes.



■ L/R Balance Training (Available only in health and learning mode)

Purpose : To balance the left brain and right brain functions, to improve thinking and intelligence ability and to achieve a harmonious state.



Effects : The left and right brain have specialized functions, and maximize their efficiency when harmonizing their given roles and cooperating with each other. If only one side is developed, the overall activities of the brain are lowered and mental unbalance and defects are caused. This training prevents and resolves these problems, balances the left and right brains, and helps the brain develop harmoniously.

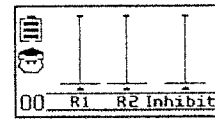
Applications : For preventing various kinds of mental diseases; before, during and after full-scale mental activities; before and after meditation training.

Methods : Take 3-5 deep breaths and concentrate on your breathing. Put all other thoughts out of your mind and get comfortable.

Once you hear a ping sound, concentrate only on that ping and stay comfortable. If you are too strained and the training is not working well, take rest training for 5 minutes before starting this training.

■ Refresh Training (Available only in sport mode)

Purpose : To raise attention power by balancing the left and right brain functions, leading to a harmonious state and activating the brain.



Effects : The power of attention in sport is the most important factor in determining performance. To raise the power of attention, it is necessary to fully activate the left and right brains and to harmoniously maximize their given functions. This training is effective for raising ability, mental health and physical health by activating the left and right brains in harmony and balance.

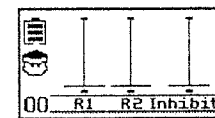
Applications : To prevent various kinds of mental diseases; before, during and after full-scale exercise; before and after meditation training.

Methods : Take 3-5 deep breaths and concentrate on your breathing. Put all other thoughts out of your mind and get comfortable.

Once you hear a ping sound, concentrate only on that ping and stay comfortable. If you are too strained and the training is not working well, take relaxation training for 5 minutes before starting this training.

■ Awakening Training (Available only in meditation mode)

Purpose : This training is to normalize, harmonize and balance the activities of the left and right brain before meditation training, and also for awaking consciousness at any time.



Effects : When in meditation, the brain falls into a deep unconscious state, which is similar to sleep. However, for effective meditation you definitely need to be awake to look into yourself. It is very important to expand consciousness rather than fall asleep during meditation. This training activates the brain while maintaining balance between the left and right brain and keeps you conscious before meditation. Accordingly, you can be absorbed in meditation whilst looking into yourself rather than falling asleep, thus maximizing the effects of meditation.

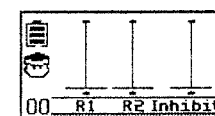
Applications : For preventing various kinds of mental diseases, before and after meditation training.

Method : Take 3-5 deep breaths and concentrate on your breathing. Put all other thoughts out of your mind and get comfortable.

Once you hear a ping sound, concentrate only on that ping and stay comfortable. If you are too strained and the training is not working well, take relaxation training for 5 minutes before starting this training.

■ Self Control Training (Available only in sports mode)

Purpose : This training is to adjust the status of consciousness by harmonizing the activities of the left and right brain, so that the control of consciousness can be automatically adjusted.



Effects : To automatically adjust the sub-conscious of humans to achieve a conscious state, in terms of behavior, recognition and physiology, so that experience of successfully performed exercise behavior can continue during training and even after training. Self-control during exercise is absolutely paramount in that it harmonizes the activities of the left and right brain to stabilize the emotions and ability of concentration and enhances judgement.

Applications : For preventing various kinds of mental diseases, before and after exercise, before and after meditation training.

Method : Take 3-5 deep breaths and concentrate on your breathing. Put all other thoughts out of your mind and get comfortable.

Once you hear a ping sound, concentrate only on that ping and stay comfortable. If you are too strained and the training is not working well, take relaxation training for 5 minutes before starting this training.

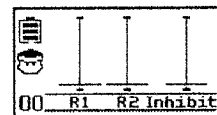
■ Memory Training (Available only in study mode)

Purpose : To fully stabilize brain waves and to convert short-term memory to long-term memory.

Effects : In general, what you learn during study is saved in the brain of humans as short-term memory. This short-term memory needs to be converted to long-term memory in order for it to be saved in the human memory warehouse. This training stabilizes the brain and enhances concentration and conversion to long-term memory.

Application : After study

Method : Before you start memory training, make sure to do concentration training or left/right brain balance training for 5~15 minutes. You can use this training to enhance your memory at any time in order to help summarize and reflect on your thoughts after training.



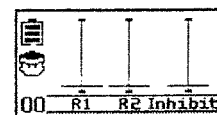
■ Creativity Training (Available only in study mode)

Purpose : To freely generate more creative thoughts by sufficiently relaxing your body and mind, and by awakening the latent deep consciousness in your mind.

Effects : This training brings up creative ideas and concepts by surfacing the consciousness deep inside yourself as it leads you to a deep consciousness state. This state appears when the activities of the brain are totally purified, and refers to an extremely stabilized state. It is very different to the concentration state where you only think about one thing. Creativity appears due to inspiration or intuition from deep in your consciousness, and this training has the effect of awakening the deep inside consciousness by perfectly stabilizing the brain.

Application : When creative ideas or concepts are required

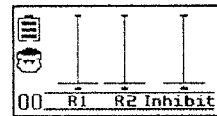
Method : Make sure to do concentration training or left right balance training for 5 ~ 15 minutes before creativity training.



■ Meditation Training

Purpose : This training is to awake the inside consciousness and to lead you to a deep meditation state by perfectly stabilizing the brain.

Effects : Meditation requires not only concentrating, but also awakening from unconsciousness. It is very important to meditate while the consciousness is awake. This training enables you to obtain various meditation effects by leading you to a deep consciousness state. The effects can be maximized, but you can only be led to the perfect meditation state when you use several meditation techniques at the same time. In addition, you can check whether you are meditating correctly.



Application : Full-scale meditation training.

Method : It is very important to fully activate the brain and stay awake by doing concentration training or awakening training before meditation training. There are 3 stages provided, and, if you are a beginner, start from the 1st stage. Since each stage leads you to a deeper meditation state, you should start from the 1st stage and carry out training in accordance with your capabilities.

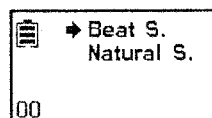
Since the method of training differs depending on the person, precise diagnosis and analysis are required. Since special management and guidance are required, you should train according to the special meditation training program after performing precise diagnosis (analysis of brain waves).

4. Sound Stimulation Training Mode

If you press the select button when in not wearing headband mode, you will see a screen where you can choose "Sound Mode", "Timer", or "Back Light" mode as shown in the figure. Use the direction button to move the cursor to sound study mode and then press the select button.



"Sound Mode" leads your mind to a comfortable state when it may be difficult to measure the brain waves, e.g. during study or work. A screen will be displayed where you can select "Beat S." or "Natural S" mode. Place the cursor on the mode you want and press the select key.



If you select binaural beat sound or natural sound and listen to your choice, you can feel that brain waves naturally sympathize with the sound. Place the cursor on the sound you want and press the select key to bring up the following sound screen.



If necessary, connect sound from another sound device to the external sound input terminal in order to carry out sound study along with music or other sounds of your choice.

1) Beat Sound Mode

- "Beat S." mode has 10 binaural beat sounds. Each sound has a different pitch and different kinds of binaural beat. Listen to the sounds and select the sound you want.
- Binaural beats date back to 1893 when H.W.DOVE of Germany found that when a sound of different frequency is heard in each ear, the ears perceive an echo phenomenon with the same frequency as the difference between the two audible beats. Binaural beats occur in the frequency ranges from 30 Hz to 1000 Hz, and it was discovered that when you hear this echo, you feel relaxed and your concentration is enhanced.
- Having studied the echo phenomenon of binaural beats for several decades, Dr. Robert

A. Monroe of the USA referred to this as "Hemi-Sync" and has published many theses on the effects and applications. Until now, many meditation devices sold in the USA and several European countries have mostly used optical signals or binaural beat sounds in order to help people achieve a comfortable mental state.

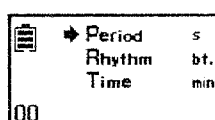
2) Natural Sound Mode

- "Natural S." has 6 kinds of sounds. You can hear the natural sound you want by placing the cursor on that sound and pressing the select key.
- Natural sounds, such as waves, serve to stabilize the mental state of humans in a similar way to binaural beats. Try various sounds and select the sound that best suits you in order to obtain the best possible effects.

5. Additional Functions

1) Timer Mode

- When you select "Timer" mode, you will see a screen which displays the sector, group and time as follows:



- "Timer" mode is used when you need to be notified of the time, such as when training to regulate your breathing.

Period

- When you press the right direction key while the cursor is placed on "Period", it changes to 0.5 sec, 1 sec, 1.5 sec, 2 sec, 3 sec, ..., 9 sec and finally 10 sec. When you press the left direction key, the time changes in the opposite direction. When you select the time interval you want, a signal will be generated accordingly.

Rhythm

- Use the upward or downward direction to move the cursor to "Rhythm", and press the right or left direction keys to change it between 1 time and 10 times. For example, if you select 4 times, 3 consecutive low signals will be generated and the 4th signal generated will be a high one. Using different sectors and groups, you can generate any combination of signal sounds that you want.

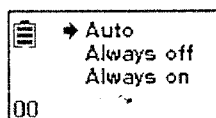
Time

- Place the cursor on "Time" using the up and down keys, and press the left and right

direction keys to display a time from 10 minutes to 180 minutes. The time is the period for which the signal sound will be generated. Press the selection key to generate the sound signal for the period of time you require.

2) Back Light Mode

- If you select "Back Light" mode, "Auto", "Always off", and "Always on" are displayed as follows.

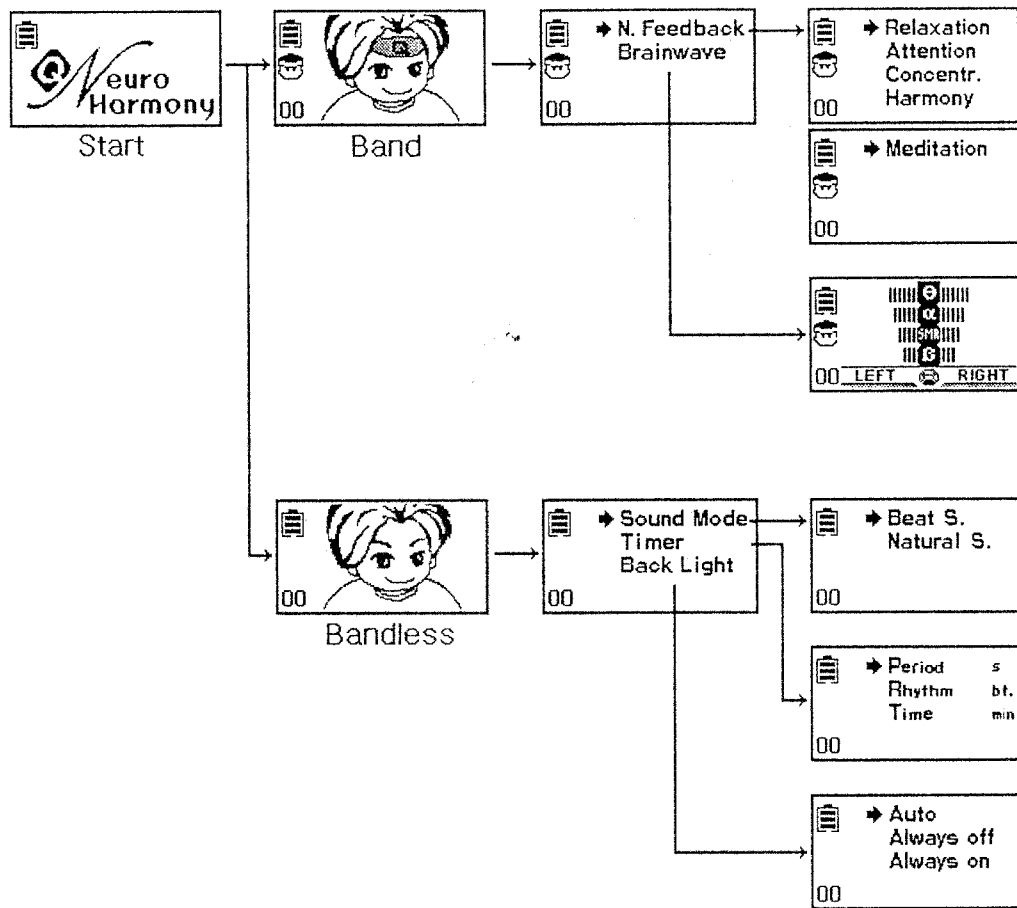


Auto This mode turns on the back light for about 3 seconds only when the user presses a key, so that power consumption can be reduced.

Always off This removes any power consumption by the back light so that battery consumption can be reduced to a minimum.

Always on This provides convenient usage during nighttime even though the consumption of power is large.

Flow Chart



Specifications

Mainframe

- Dimensions(approx.): 85mm × 58mm × 24mm
- Weight(approx.): 95g
- Powered By Ni-MH Rechargeable Battery - Typical 3.6V, 550mAh
- 2 Channel EEG with Differential Input
- A/D Resolution : 10 bit
- Sampling Rate : 256 samples/sec per channel
- Input Impedance: 10^{13} Ohms
- CMRR : 100 dB
- Supply Voltage: 4.0 VDC ~ 3.2 VDC
- Current Consumption : 50mA @ 3.6V
- PC Interface : RS-232C

Charger

- Dimensions(approx.): 106mm × 103mm × 48mm
- Weight(approx.): 210g
- AC Power : 90 ~ 240V, 50/60 Hz
- Power Consumption: 5 watts
- Isolated by Photo Coupler
- Cable Interface: 6-pin Din jack connects directly to 9 pin PCs RS232 port

This product is researched and developed by the Korea Research Institute of Jungshin Science, and manufactured, produced and sold by CS Braintech Corp. Since all technologies used in this product are protected by patent, reproduction and copying of this device and its operation programs without permission are subject to legal punishment due to violation of our patent rights.

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Windows 98/ME/2000/NT are the trademarks of Microsoft Corporation.
Pentium is the trademark of Intel Corp.

Quality Warranty

CS Braintech Corp. guarantees the products in accordance with the regulation of Consumer Compensation. If the product breaks down, contact the branch store you bought the product or Customer Support Center(Tel. 080-244-2488) in accordance with the contents of quality guarantee as follows:

Contents of Product Warranty

- You are guaranteed to receive free repair service for 1 year from the date of purchase, if your product is broken down after you have used products in strict compliance with user's manual.
- Free repair service is not provided even during warranty period if the product is broken down due to the faults of consumer falling, disassembling or careless handling) or accident(fire, flood or natural disaster).
- Bring this product warranty when you need repair or exchange and contact the branch store you bought the product.

WARNING

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.

CS Braintech Corp.