mindset

Instruction Manual

The NeuroSky product families consist of hardware and software components for simple integration of this bio-sensor technology into consumer and industrial end-applications. All products are designed and manufactured to meet exacting consumer specifications for quality, pricing, and feature sets. NeuroSky sets itself apart by providing building-block component solutions that offer friendly synergies with related and complementary technological solutions.

Contents

Introduction to the MindSet

Thank you for purchasing NeuroSky's MindSet™. This Brain-Computer Interface (BCI) device turns your brainwaves into actions, unlocking new worlds of interactivity. The MindSet reports the wearer's mental state in the form of NeuroSky's proprietary Attention and Meditation eSense™ algorithms, along with raw wave and information about the brainwave frequency bands. The NeuroSky MindSet can be used with supported video games, research software, or a number of other applications for an enhanced user experience.

For any technical information updates and additional support questions not answered by this document, please register at the NeuroSky support website at http://support.neurosky.com. We also recommend you join our email list by filling out the form on http://www.neurosky.com to receive general information about NeuroSky, new products announcements, and any technical information updates.

MindSet Contents

- MindSet Quick Start Guide

- MindSet headset with built-in *Bluetooth*® audio

- MindSet BCI Demonstration Software CD, containing:
    - *Bluetooth* Installation Software
    - **PDF documents**:
        * MindSet Instruction Manual
        * MindSet Quick Start Guide
        * Brainwave Visualizer Manual
        * The Adventures of NeuroBoy BCI Technical Demonstration Manual
    - **Applications** for PC and Mac:
        * Brainwave Visualizer
        * The Adventures of NeuroBoy BCI Technical Demonstration

- USB cable, for charging the MindSet

- USB *Bluetooth* dongle

NeuroSky Technology Overview

Brainwaves

The last century of neuroscience research has greatly increased our knowledge about the brain and particularly, the electrical signals emitted by neurons firing in the brain. The patterns and frequencies of these electrical signals can be measured by placing a sensor on the scalp. The MindSet contains NeuroSky ThinkGear™ technology, which measures the analog electrical signals, commonly referred to as brainwaves, and processes them into digital signals to make the measurements available to games and applications. The table below gives a general synopsis of some of the commonly-recognized frequencies that tend to be generated by different types of activity in the brain:

Brainwave Type	Frequency range	Mental states and conditions
Delta	0.1Hz to 3Hz	Deep, dreamless sleep, non-REM sleep, unconscious
Theta	4Hz to 7Hz	Intuitive, creative, recall, fantasy, imaginary, dream
Alpha	8Hz to 12Hz	Relaxed, but not drowsy, tranquil, conscious
Low Beta	12Hz to 15Hz	Formerly SMR, relaxed yet focused, integrated
Midrange Beta	16Hz to 20Hz	Thinking, aware of self & surroundings
High Beta	21Hz to 30Hz	Alertness, agitation

ThinkGear

ThinkGear is the technology inside every NeuroSky product or partner product that enables a device to interface with the wearers' brainwaves. It includes the sensor that touches the forehead, the contact and reference points located on the ear pad, and the on-board chip that processes all of the data. Both the raw brainwaves and the eSense Meters (Attention and Meditation) are calculated on the ThinkGear chip.

eSense

eSense™ is a NeuroSky's proprietary algorithm for characterizing mental states. To calculate eSense, the NeuroSky ThinkGear technology amplifies the raw brainwave signal and removes the ambient noise and muscle movement. The eSense algorithm is then applied to the remaining signal, resulting in the interpreted eSense meter values. Please note that eSense meter values do not describe an exact number, but instead describe ranges of activity.

eSense Meter - General Information

The eSense meters are a way to show how effectively the user is engaging Attention (similar to concentration) or Meditation (similar to relaxation).

Like exercising an unfamiliar muscle, it may take some time to gain full proficiency with each of the eSense™ meters. In many cases, people tend to be better at one eSense than the other when they first begin. We recommend trying different tactics until you are successful with one. Once you see a reaction on the screen from your efforts, you will be able to duplicate the action more easily with additional practice.

Generally, Attention can be controlled through a visual focus. Focus on a singular idea. Try to "funnel" your concentration and focus your train of thought towards pushing up the meter. Other suggestions include picking a point on the screen to stare at or imagining the action you are trying to accomplish happening. For example, look at the Attention eSense meter and imagine the dial moving towards higher numbers.

For Meditation, it typically helps to try to relax yourself. Connect to a sense of peace and calm by clearing your mind of thoughts and distractions. If you are having difficulty engaging Meditation, close your eyes, wait a number of seconds, and then open your eyes to see how the meter has responded.

If you have trouble at first in controlling your eSense meter levels, be patient. Try different techniques and practice. Also be sure to read and try to understand the Technical Description in order to get a better idea about how eSense actually works under the hood.

eSense Meter - Technical Description

For each different type of eSense (i.e. Attention, Meditation), the meter value is reported on a relative eSense scale of 1 to 100. On this scale, a value between 40 to 60 at any given moment in time is considered "neutral" and is similar in notion to "baselines" that are established in conventional brainwave measurement techniques (though the method for determining a ThinkGear baseline is proprietary and may differ from conventional brainwaves).

A value from 60 to 80 is considered "slightly elevated", and may be interpreted as levels tending to be higher than normal (levels of Attention or Meditation that may be higher than normal for a given person). Values from 80 to 100 are considered "elevated", meaning they are strongly indicative of heightened levels of that eSense.

Similarly, on the other end of the scale, a value between 20 to 40 indicates "reduced" levels of the eSense, while a value between 1 to 20 indicates "strongly lowered" levels of the eSense. These levels may indicate states of distraction, agitation, or abnormality, according to the opposite of each eSense.

The reason for the somewhat wide ranges for each interpretation is that some parts of the eSense algorithm are dynamically learning and at times employ some "slow-adaptive" algorithms to adjust to natural fluctuations and trends of each user, accounting for and compensating for the fact that brainwaves in the human brain are subject to normal ranges of variance and fluctuation. This is part of the reason why ThinkGear sensors are able to operate on a wide range of individuals under an extremely wide range of personal and environmental conditions, while still giving good accuracy and reliability.

ATTENTION eSense

The eSense Attention meter indicates the intensity of a user's level of mental "focus" or "attention", such as that which occurs during intense concentration and directed (but stable) mental activity. Its value ranges from 0 to 100. Distractions, wandering thoughts, lack of focus, or anxiety may lower the Attention meter level. See eSense Meter - General Information for details about interpreting eSense levels in general.

MEDITATION eSense

The eSense Meditation meter indicates the level of a user's mental "calmness" or "relaxation". Its value ranges from 0 to 100. Note that Meditation is a measure of a person's mental states, not physical levels, so simply relaxing all the muscles of the body may not immediately result in a heightened Meditation level. However, for most people in most normal circumstances, relaxing the body often helps the mind to relax as well. Meditation is related to reduced activity by the active mental processes in the brain. It has long been an observed effect that closing one's eyes turns off the mental activities which process images from the eyes. So closing the eyes is often an effective method for increasing the Meditation meter level. Distractions, wandering thoughts, anxiety, agitation, and sensory stimuli may lower the Meditation meter levels. See eSense Meter - General Information for details about interpreting eSense levels in general.
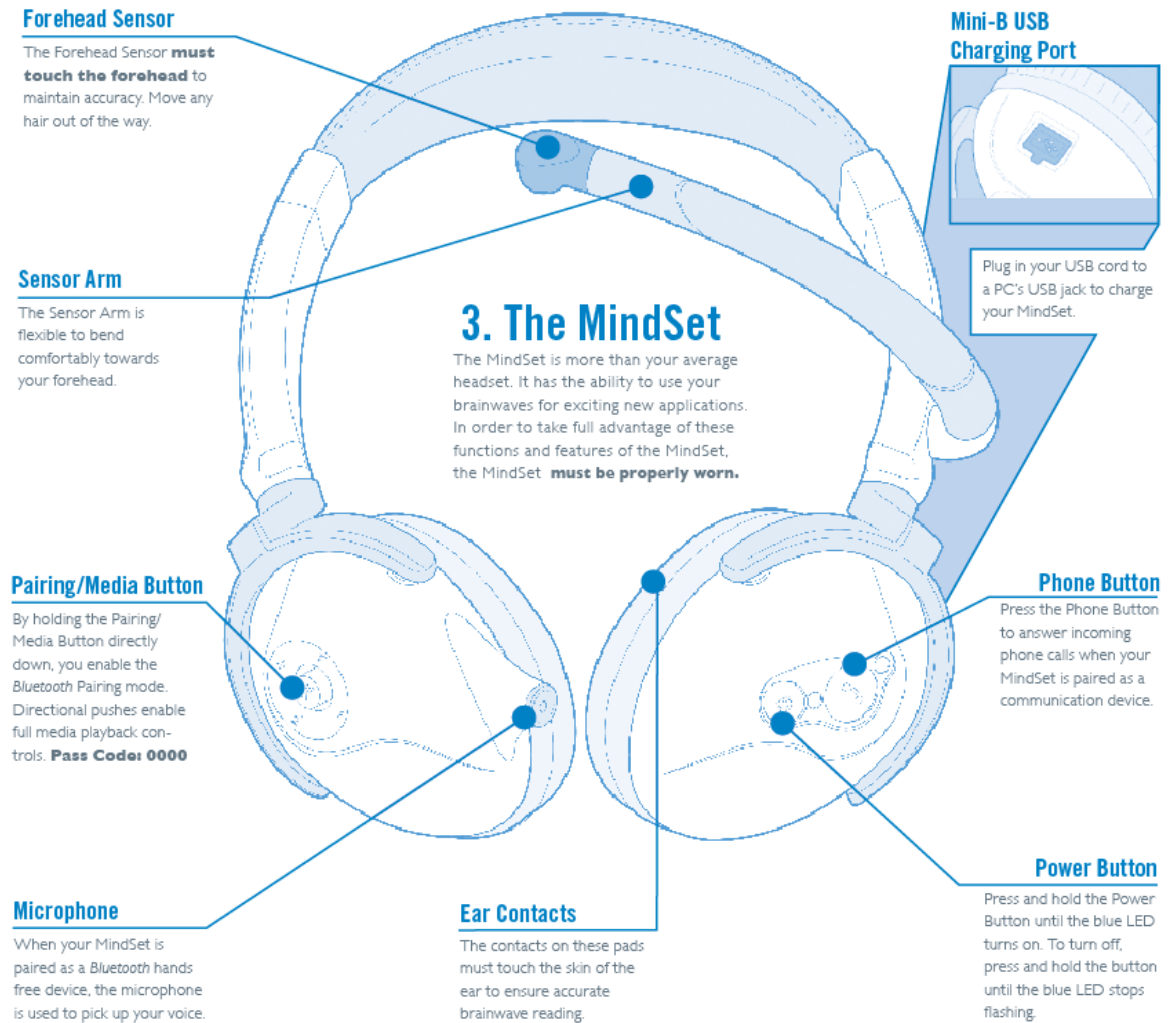
Setting Up Your MindSet

Forehead Sensor

The Forehead Sensor **must touch the forehead** to maintain accuracy. Move any hair out of the way.

Mini-B USB Charging Port

Plug in your USB cord to a PC's USB jack to charge your MindSet.

Sensor Arm

The Sensor Arm is flexible to bend comfortably towards your forehead.

3. The MindSet

The MindSet is more than your average headset. It has the ability to use your brainwaves for exciting new applications. In order to take full advantage of these functions and features of the MindSet, the MindSet **must be properly worn.**

Pairing/Media Button

By holding the Pairing/ Media Button directly down, you enable the *Bluetooth* Pairing mode. Directional pushes enable full media playback controls. **Pass Code: 0000**

Phone Button

Press the Phone Button to answer incoming phone calls when your MindSet is paired as a communication device.

Microphone

When your MindSet is paired as a *Bluetooth* hands free device, the microphone is used to pick up your voice.

Ear Contacts

The contacts on these pads must touch the skin of the ear to ensure accurate brainwave reading.

Power Button

Press and hold the Power Button until the blue LED turns on. To turn off, press and hold the button until the blue LED stops flashing.

Figure 3.1: Overview of the MindSet

Minimum System Requirements

	PC	Mac
Operating system	Windows XP or Vista	OS X 10.5 "Leopard" or later
Processor	Pentium 4 1.6GHz	Intel Core 2 Duo
Memory	512MB	1GB
Hard disk	200MB	200MB
Bluetooth	Bundled USB dongle	Bundled USB dongle or built-in receiver required

Power On

To turn on the MindSet, hold down the power button until you see the blue LED turn on. Turn off the MindSet by holding down the same power button until the blue LED goes from flashing to solid. Then let go of the button and the LED will turn off.

Charging the MindSet

The MindSet has a rechargeable lithium-ion battery that is charged using the mini-B USB port on top of the left ear cup of the MindSet. Rotate the head and fork outwards to reveal the mini-B USB port.
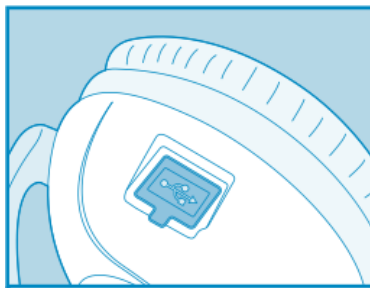
Figure 3.2: Mini-B USB port on left ear cup

To charge the MindSet, plug the supplied USB cable into the MindSet, and connect the other end to a computer or to a USB charger. The red LED on the MindSet will light up to indicate that the MindSet is being charged. Once it is completely charged, the red LED will turn off. Allow the MindSet to fully charge before using it the first time, and then recharge the MindSet as necessary when not in use. The MindSet may take up to eight hours to charge. Charging it overnight is ideal.

Important: Do not wear the MindSet while charging.

Bluetooth Dongle Setup

Windows Bluetooth Adapter Installation

Important: It is recommended to use the supplied Bluetooth adapter.

1. Run the Bluetooth software setup on the MindSet Demonstration CD. This program can be accessed from the Auto-Run menu when you insert the MindSet Demonstration Cd.

2. Insert the Bluetooth adapter into an available USB port when prompted.

3. Restart computer.

Mac OS X

If your Mac already has *Bluetooth* installed, proceed. Otherwise, simply plug the included *Bluetooth* dongle into an open USB slot. Mac OS X will automatically utilize the appropriate device drivers.

Bluetooth MindSet Pairing

Windows Bluetooth Pairing

1. Power on the MindSet by holding down the power button for 2 seconds or until the blue light blinks.

2. Place the MindSet into pairing mode by pushing in the Media Button for three seconds. The red and blue lights will blink to indicate that the MindSet is in pairing mode.

3. Double-click on the Bluetooth icon in the system tray. If the Bluetooth icon is not present, find the Bluetooth icon in the Control Panel.
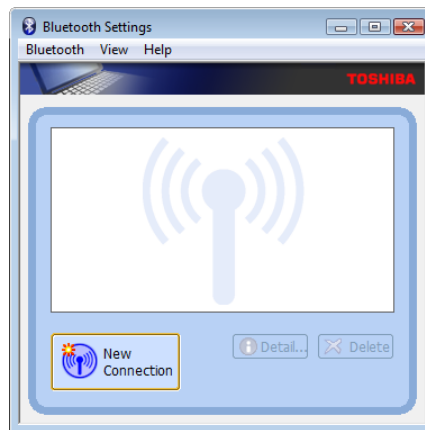
4. Click on *New Connection*.

Figure 3.3: Bluetooth Settings

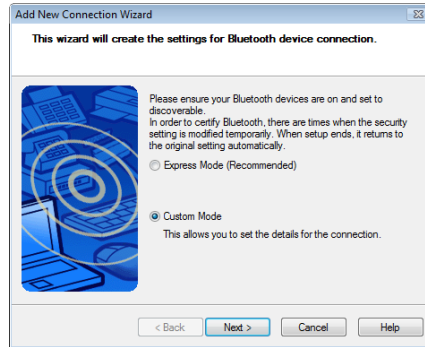5. Choose the Custom Mode option and then click *Next*.

Figure 3.4: Add New Connection Wizard

6. If the wizard detects the MindSet, it will show up as **MindSet**. Select **MindSet** and click *Next*.
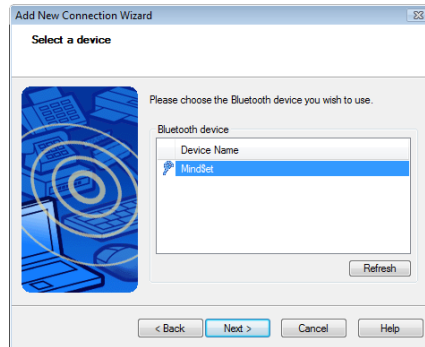

Figure 3.5: Device Discovery

> **Note:** If the MindSet does not appear on the list, verify that the MindSet is in paring mode and click on *Refresh*.
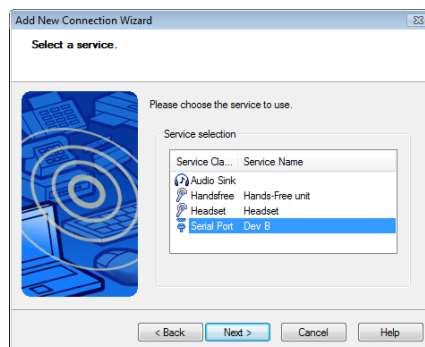
7. Select *Serial Port Dev B* and click *Next*.

Figure 3.6: Service Selection

8. Uncheck *Use default COM port* and select the lowest available COM port. Click *Next*.
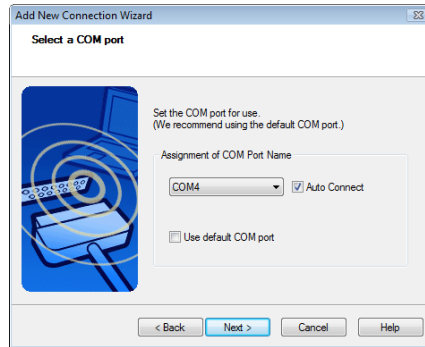

Figure 3.7: COM Port Selection
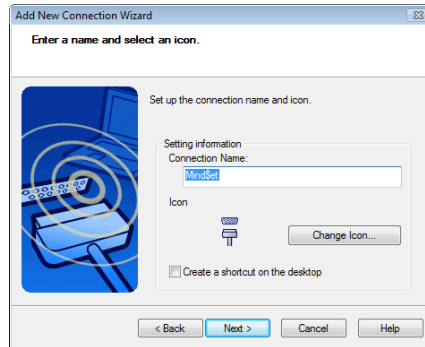
9. Use the default name and icon. Click *Next*.

Figure 3.8: Name & Icon

10. Click *Next* to complete the pairing of the MindSet.

11. Double click on the MindSet icon to connect to the COM port. The Bluetooth manager will ask for a passkey (PIN) to connect to the MindSet. Enter in `0000` in the passkey box and click *OK*.
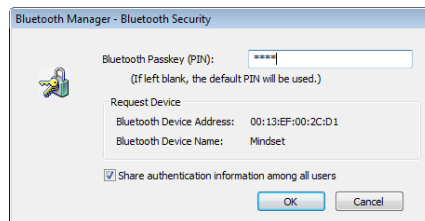
Figure 3.9: Bluetooth Settings

Figure 3.10: Bluetooth Security

12. The MindSet is now connected.

13. To use the MindSet's other features, such as Bluetooth Audio, repeat the pairing process and choose the desired service in *Step 7*.

Mac OS X

1. If your Mac already has *Bluetooth* installed, proceed. Otherwise, plug in the included *Bluetooth* Dongle. We strictly recommend to use the on-board bluetooth chip for Mac.

2. Put the powered-on MindSet into "Pairing Mode" by holding inwards the Media Button for three seconds. The red and blue LEDs will alternately flash to indicate "Pairing Mode".

3. Open *System Preferences*, and click on the *Bluetooth* icon to configure *Bluetooth* devices.

4. Click on the " **+** " icon in the lower-left to add a new *Bluetooth* device.

5. When asked to *Select Device Type*, choose "Any Device", then click "Continue".

6. Click the "Passkey Options…" button at the bottom, and make sure the option is set to "Use a specific passkey". Click "OK".
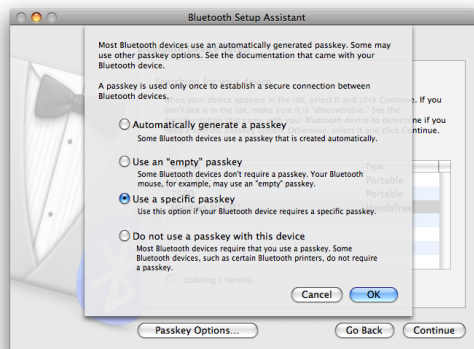

Figure 3.11: Passkey options

7. In the same window, "MindSet" should appear in the list of *Bluetooth* devices in range. Select it, then click "Continue".
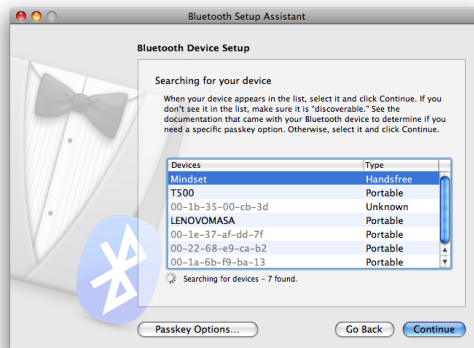

Figure 3.12: List of Bluetooth devices

8. Once the wizard is done gathering information about the MindSet, click "Continue".

9. When prompted for a passkey, fill in the passkey **0000**, then click "Continue".
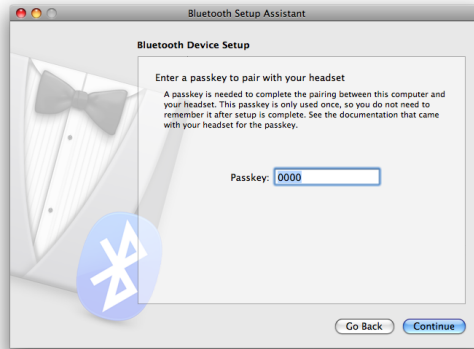
Figure 3.13: Passkey entry

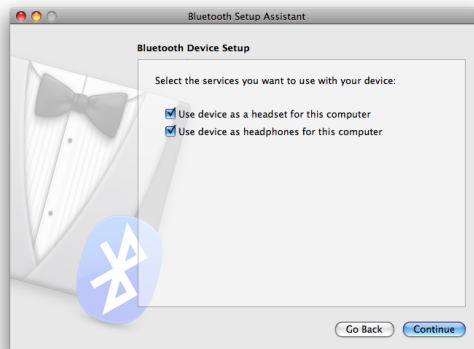10. When asked about services, just use the default setting, then click "Continue".

Figure 3.14: Available services

11. You are now ready to use the MindSet.

Serial Port Name

Windows XP/Vista

To find the COM port that your MindSet is connect to, right-click on the MindSet icon in the Bluetooth control panel and select *Detail....* The COM port will be listed in the *Setting* panel.

Figure 3.15: MindSet icon

Mac OS X

Since the Mac does not use numbered serial ports, users must determine manually which port the MindSet connects to. Once you've completed the pairing procedure, load up the *System Preferences*, and click on the *Bluetooth* icon. Select the "MindSet" in the list of devices, then click on the gear icon underneath. Then, click on the `Edit Serial Ports…` menu option.
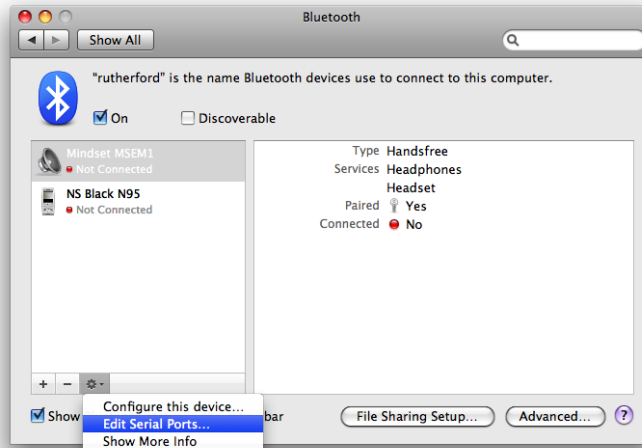
Figure 3.16: Edit Serial Ports…

Simply copy the text listed next to the *Path* label. This is the MindSet's serial port. Paste this text back into the *Port* field of your application.
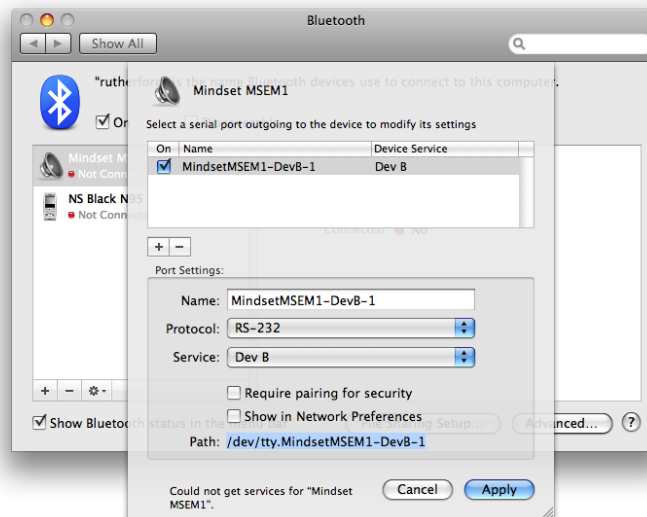
Figure 3.17: Retriving the port name

Bluetooth Troubleshooting

Common causes for *Bluetooth* pairing failures and possible solutions:

Problem	Cause	Solution
Pairing failed	Incorrect passkey	Use **0000** as the passkey while pairing.
Pairing failed	Low battery	Charge the MindSet completely before use.
Cannot see the MindSet while searching for *Bluetooth* devices	The MindSet is not in pairing mode.	Put the MindSet in pairing mode by pressing inwards the media/playback button until the blue and red LED's flash.
Cannot add the SPP service during pairing	The MindSet's SPP service is not available.	Power cycle the MindSet and pair again.

Using Your MindSet

This chapter walks you through fitting the MindSet and installation of the included MindSet software on your PC or Mac.

Fitting the MindSet

The MindSet is more than your average headset. It has the ability to use your brainwaves for exciting new applications.

> **Important:** In order to take full advantage of these functions and features of the MindSet, the MindSet must be properly worn.

1. The sides of the Mindset are adjustable and can be extended to fit various sizes. The Forehead Sensor Arm is flexible and should arch inwards. Extend the sides as necessary and bend the Forehead Sensor Arm to comfortably fit your head.

2. Orient the MindSet with the Forehead Sensor Arm on your left hand side. Put on the MindSet. If the sensor does not make contact with the forehead or if the fit is not comfortable, remove the MindSet to readjust the sides and the Forehead Sensor Arm.

Figure 4.1: Orient the MindSet correctly before wearing it

3. Make sure the contact points on the left ear pad make skin-contact with your ear. Move any hair or obstructions out of the way. Readjust the left ear cup as necessary to make proper contact with your ear.
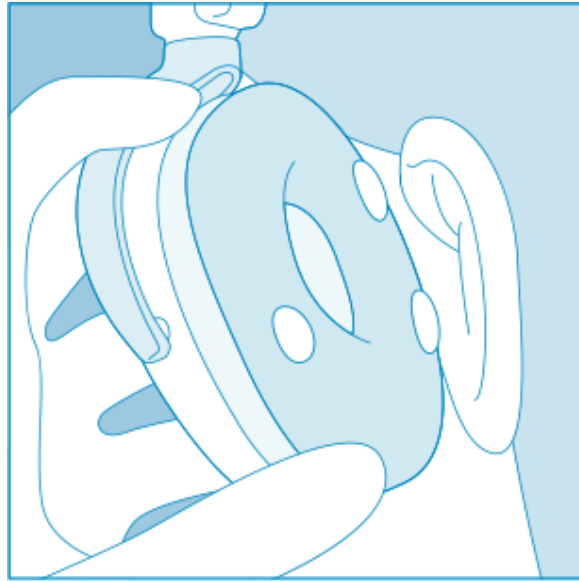

Figure 4.2: Fitting the sensors on the ear

4. Adjust the Forehead Sensor Arm of the headset so that the Forehead Sensor makes contact with your forehead. This sensor must maintain contact in order to properly measure your brainwaves. The sensor should be comfortable, yet stay in position. Keep hair away from the sensor – the sensor must be able to directly contact the skin at all times.
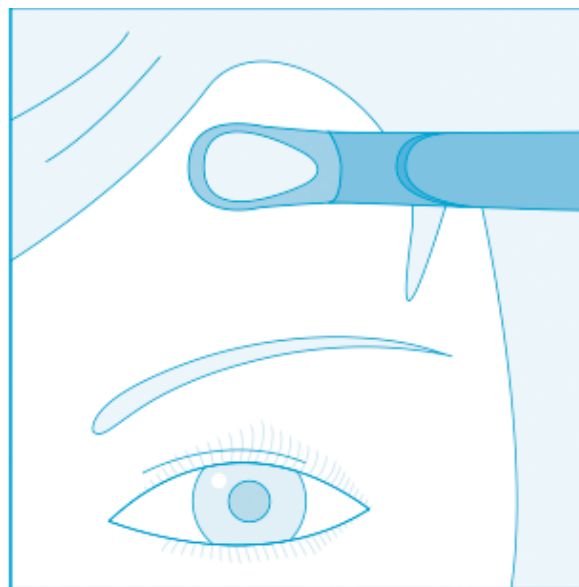

Figure 4.3: Closeup of the sensors making contact with the forehead

5. This is how the MindSet should look when properly worn. During usage, if you are not receiving a signal, repeat the steps above to make minor adjustments to ensure the sensor and contacts have proper **skin contact**.

Figure 4.4: Properly worn MindSet

MindSet Stereo Audio and Bluetooth Headset Functions

Controls

Stereo Audio

Button	Function
Pairing / Media Button	Directional pushes of the Pairing/Media Button (henceforth referred to as Media Button) enable the different media playback controls. Holding the button inwards without any directional nudges enables the Pairing function.
Play / Pause	Tap the Media Button directly inwards, without any directional 'nudges'
Volume Up	Push the Media Button upwards.
Volume Down	Push the Media Button downwards.
Backwards	Push the Media Button to the left.
Forwards	Push the Media Button to the right.

Bluetooth Headset

Button	Function
Phone Button	To answer a call, press the Phone Button. To end a call, press the Phone Button again.

Windows Vista

Stereo Audio

Windows Bluetooth Audio Pairing

1. Power on the MindSet by holding down the power button for 2 seconds or until the blue LED blinks.

2. Place the MindSet into pairing mode by pushing in the Media Button for three seconds. The red and blue LEDs will blink to indicate that the MindSet is in pairing mode.

3. Double-click on the Bluetooth icon in the system tray. If the Bluetooth icon is not present, find the Bluetooth icon in the Control Panel.
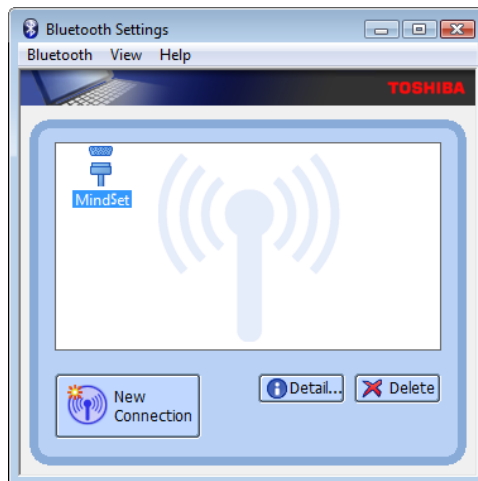
4. Click on *New Connection*.

Figure 4.5: Bluetooth Settings

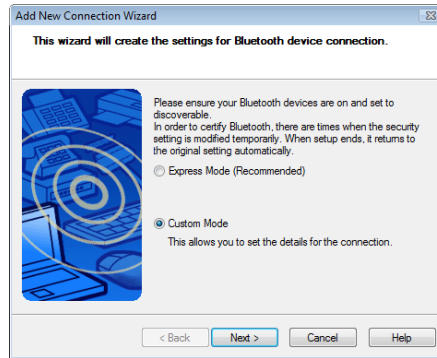5. Choose the Custom Mode option and then click *Next*.

Figure 4.6: Add New Connection Wizard

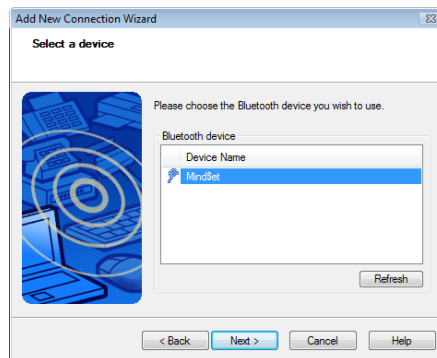6. If the wizard detects the MindSet, it will show up as **MindSet**. Select **MindSet** and click *Next*.

Figure 4.7: Device Discovery

> **Note:** If the MindSet does not appear on the list, verify that the MindSet is in paring mode and click on *Refresh*.
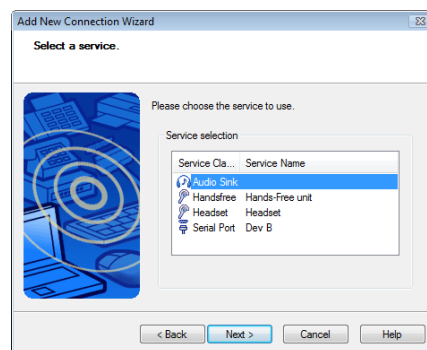
7. Select *Audio Sink* and click *Next*.

Figure 4.8: Bluetooth Audio Service Selection

8. The Bluetooth manager may ask for a passkey (PIN) to connect to the MindSet. Enter in `0000`
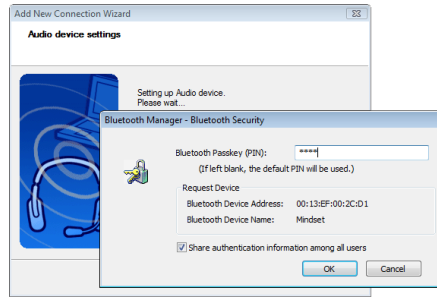
in the passkey box and click *OK*.

Figure 4.9:

9. Rename the Connection Name to `MindSet Audio` and click *Next*.
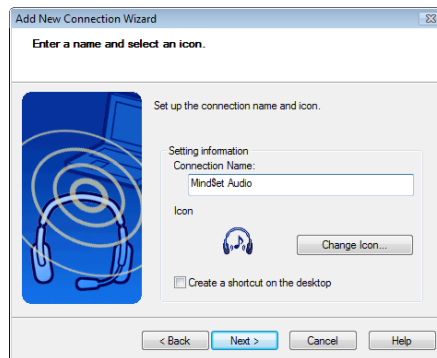
Figure 4.10:

If you have properly followed the MindSet installation procedure, audio functionality will be enabled.

The MindSet's audio functionality can be used with iTunes™ and Windows Media Player™. Audio players besides iTunes and Windows Media Player have not been tested and are not officially supported. iTunes and Windows Media Player are registered trademarks of Apple and Microsoft, respectively. All rights reserved.

Bluetooth Headset

The MindSet can also support voice and telephone functions for many different cell phones. Please refer to your phone's user manual for pairing instructions.

Mac OS X

Figure 4.11: Mac Bluetooth service selection

To enable *Bluetooth* stereo audio on the MindSet, simply click on the *Bluetooth* icon in the Menu Bar, then hover your mouse over the `MindSet` option. Then click on "Use Headphones".
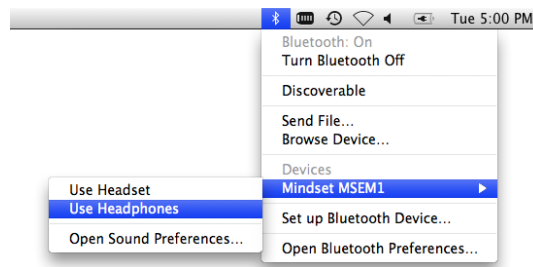
To use the MindSet as a *Bluetooth* headset, click on the *Bluetooth* icon in the Menu Bar, then hover your mouse over the `MindSet` option. Then click on "Use Headset".

Software Installation

Windows XP/Vista

1. Insert the MindSet BCI Demonstration Software CD into the CD drive of your computer.

2. The CD will automatically bring up the Auto-Installer window. If it does not, execute the `AutoRun.exe` program from the disc.

3. An on-screen menu will come up that directs you to install each of the included software applications. Click on the buttons of the software packages you would like to install. Folders containing the setup files will be opened. Double click on the setup files to install.

4. Documentation for each software application is also available from the on-screen menu.

Mac OS X

1. Insert the MindSet BCI Demonstration Software CD into the CD drive of your computer.

2. The CD will automatically bring up the Auto-Installer window.

3. An on-screen menu will direct you to drag and install each of the included software applications. Simply drag the programs as directed.

4. Documentation for each software application is also available from the on-screen menu.

Brainwave Visualizer

The Brainwave Visualizer is a colorful, interactive application controlled by your brain that shows you a graphical representation of your brain's activity. The Brainwave Visualizer includes the Brainwave Visualization, Brainwave Power Spectrum Graph, and the eSense Attention and Meditation meters.

The on-screen shapes morph and change color depending on your state of mind. Please refer to the included Brainwave Visualizer Manual for more details.

The Adventures of NeuroBoy BCI Technology Demonstration

As NeuroBoy™, use your special telekinetic powers to push, pull, lift, or burn objects. Different objects in the world weigh different amounts, so you will need to hone your mental muscle to pick up the heavier items.

The game provides a 3rd-person environment. This demo requires a more powerful computer, but you may scale down the graphics to meet your computer's specifications. Please refer to the included manual for more details.

Additional Products

To find new and exciting ways to unlock the full potential of you MindSet, visit the NeuroSky Store for additional software and applications: http://store.neurosky.com

MindSet Development Tools (MDT)

The NeuroSky MindSet Development Tools (MDT) is available for free from the NeuroSky Store, and provides all the tools and resources necessary to create and publish games and applications capable of taking advantage of the exciting new Brain-Computer Interface (BCI) technology of NeuroSky's MindSet headset. The MDT includes drivers, sample code, and documentation describing how to develop applications for several software platforms, including PC, Symbian, and even lower level platforms such as microcontrollers like the Arduino™.

Languages directly supported include C/C++, C#, Java (through JNI), and J2ME. In addition, the MDT provides the ThinkGear Connector (TGC), a daemon-like software that runs on Windows or Mac OS X, and opens a TCP port on the user's local computer so that applications can connect to it and retrieve MindSet data. As long as the TGC is running on one of the supported platforms and connected to a MindSet, then any application written in any language that can communicate through TCP sockets (such as Flash's ActionScript3 and scripting languages in general) can connect to the TGC to read data from the MindSet.

Create exciting new games that challenge people to use the power of their mind or retrofit your existing games with a new dimension of brainwave control.

The MindSet Development Tools (MDT) are available for *free* and can be downloaded from the NeuroSky Store at http://store.neurosky.com.

MindSet Research Tools (MRT)

The NeuroSky MindSet Research Tools (MRT) enable researchers to use the MindSet as a data collection device. Using the cost effective and user-friendly features of MindSet in conjunction with the MRT allows researchers to broaden the scope of their research and to make efficient use of resources.

The MRT includes the NeuroView software, which make it easy to connect, graph, view, and record MindSet data in real time. The MRT also includes the more advanced NeuroSkyLab MATLAB module, which adds the ability to define custom MATLAB scripts and functions for customized processing and analysis of MindSet data.

For more information on the uses and capabilities of the MindSet Research Tools, please visit: http://www.neurosky.com/developers/researchers/.

Care and Maintenance

- Clean the MindSet's sensor and ear contacts with alcohol-wipes (alcohol-based cleaner) periodically to ensure the best signal quality. Use a soft cloth to clean the MindSet casing
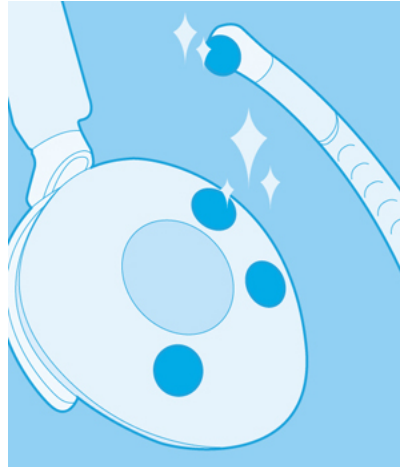

Figure 6.1: Clean the sensors regularly

- For travel and storage, gently push the sensor boom up until it is aligned with the top of the headset. Be careful not to overextend the maximum range of the boom by adjusting it beyond the natural stopping point
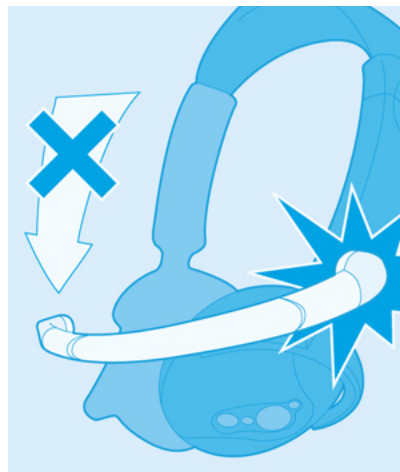

Figure 6.2: Don't extend the boom beyond its stopping point!

- Do not expose the MindSet to temperatures above 140°F (60°C)

- Be careful not to kink or overly bend the sensor boom. This will reduce the ease of fit

- Dropping or throwing the MindSet may damage the MindSet

- The MindSet is not intended for use on pets

Troubleshooting

The MindSet does not turn on.
The MindSet's charge might be low. Please recharge the MindSet. When charging the MindSet, make sure that the mini USB is plugged in all of the way.

I am having issues with my Bluetooth connection.
Please use the *Bluetooth* Dongle included with the MindSet, and then be sure to carefully follow the instructions under *Setting Up Your MindSet*, paying particular attention to *Bluetooth Dongle Setup*, *Bluetooth MindSet Pairing*, and *Serial Port Name*. Then please check if your issue has been addressed in the *Bluetooth Troubleshooting* section.

I cannot get my Bluetooth sound working.

- **Important:** The MindSet audio service must be paired to your computer before audio will work.

- If you have already paired the MindSet Bluetooth Audio, double click on the *MindSet Audio* icon in the Bluetooth control panel to connect the MindSet audio service.

Figure 7.1:

- You may need to restart your media player or other application to enable sound through the MindSet after pairing.

- If you still cannot connect, delete the *MindSet Audio* icon and pair the MindSet again.

The signal quality status is consistently poor (fewer than three bars).
The ear contacts should be resting directly on your ear and the forehead sensor should be on your forehead. Also, check that the sensors and contacts are making good contact with the skin. Make sure to remove all obstructions including hair and jewelry.

It usually takes three or four seconds for the headset to validate the signal after holding still. Also make certain to keep the sensor and contacts clean.

The eSense meters do not move.
Verify that the *Bluetooth* is paired correctly. You can use the Brainwave Visualizer to verify if the headset is transmitting. Select "Show data output" from the menu. If the numbers are changing, that means the headset is transmitting data to the PC.

Allow the eSense meters to go through a few moments to go through initialization before troubleshooting. If the meters do not move after 10 seconds, make sure the sensor rests on the forehead and the contacts are on the left ear. The sensor and contacts should make firm and consistent contact with your skin.

I don't seem to be able to control the eSense™ meters.
Like exercising an unfamiliar muscle, it may take some time to gain full proficiency with the eSense™ meters. First, be sure you understand how the eSense meters work and what they are measuring. Generally, we recommend engaging Attention by concentrating and Meditation by relaxing. Most importantly, be sure you have read the detailed explanation of eSense previously described in the *eSense™* sections.

I have a problem that is not covered by this Troubleshooting section.
Register on the NeuroSky Support Forums at http://support.neurosky.com to access additional information.

Support

For further technical support, please register on the NeuroSky Support Forums at http://support.neurosky.com.

FCC

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

ENGLISH: ISO/IEC Guide 37 [17]. * Ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, tablecloths, curtains, etc.; * No naked flame sources, such as lighted candles, should be placed on the apparatus; * Battery disposal: Lithium Ion batteries are classified by the federal government as non-hazardous waste and are safe for disposal in the normal municipal waste stream. These batteries, however, do contain recyclable materials and are accepted for recycling. Contact your local government for disposal or recycling practices in your area.

Warnings: * Batteries shall not be exposed to excessive heat such as sunshine, fire, or the like. * Excessive sound pressure from earphones and headphones can cause hearing loss.

Temperature operating range: 0-35 OC Operating Voltage: 5 V (when recharging through the USB Port. 4.3 V (normal operation with battery) Current Rating: During battery recharging: 250 mA maximum Normal use under battery power: 60 mA maximum.