

Wireless Saber Sound Kit

Assembly and Instruction Document

INTRODUCTION

The wireless saber sound kit allows you to add motion-interactive sound effects to your toys and props. With the aid of a host PC, you can playback CD quality sounds based on your own body movements. The saber module has been designed for you to easily add sound effects to lighted sabers, swords, and other motion-based props.

The saber kit comes complete with:

- Assembled motion board
- Assembled base station board w/ PC serial connector
- Base station antenna
- PC serial cable
- Coin cell batteries
- Battery connectors for 9V battery or 2 coin cells
- “Scimitar” PC software on CD
- Motion board plastic case

Sold separately are the off-the-shelf wireless modules needed to make a wireless unit. If you are not implementing a wireless link, then you do not need these modules. The wireless modules can be readily purchased from several online vendors. Here are the model numbers for the receiver and transmitter functions.

Transmitter module: Linx Technologies HP-II, model number **TXM-900-HP-II** or Linx Technologies HP3, model number **TXM-900-HP3-PPO**.

Receiver module: Linx Technologies HP-II, model number **RXM-900-HP-II** or Linx Technologies HP3, model number **RXM-900-HP3-PPO**.

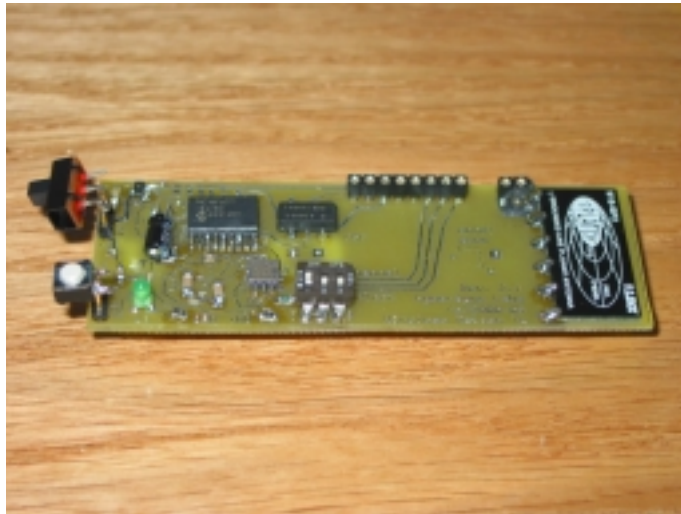
These vendors carry the Linx modules. Just search for the module numbers on their sites.

Digikey: <http://www.digikey.com>
RF Digital: <http://www.rfdigital.com>

***NOTE:** Handle your boards as you would any piece of delicate electronics! Do not get it wet and do not handle it without grounding yourself first! Even a static shock can destroy the delicate components on the board. I suggest when installing the board, insulate it with non-static foam, hot glue, or other material. Handle the board around its edges when moving it. We are not responsible for boards that are rendered useless by improper handling.*

BOARDS INCLUDED IN KIT

Here are pictures of the boards included in your package:



Motion board



Base station board

Handle the motion board and base station board by the sides when working with them. You don't want to accidentally static shock the boards and render them useless!

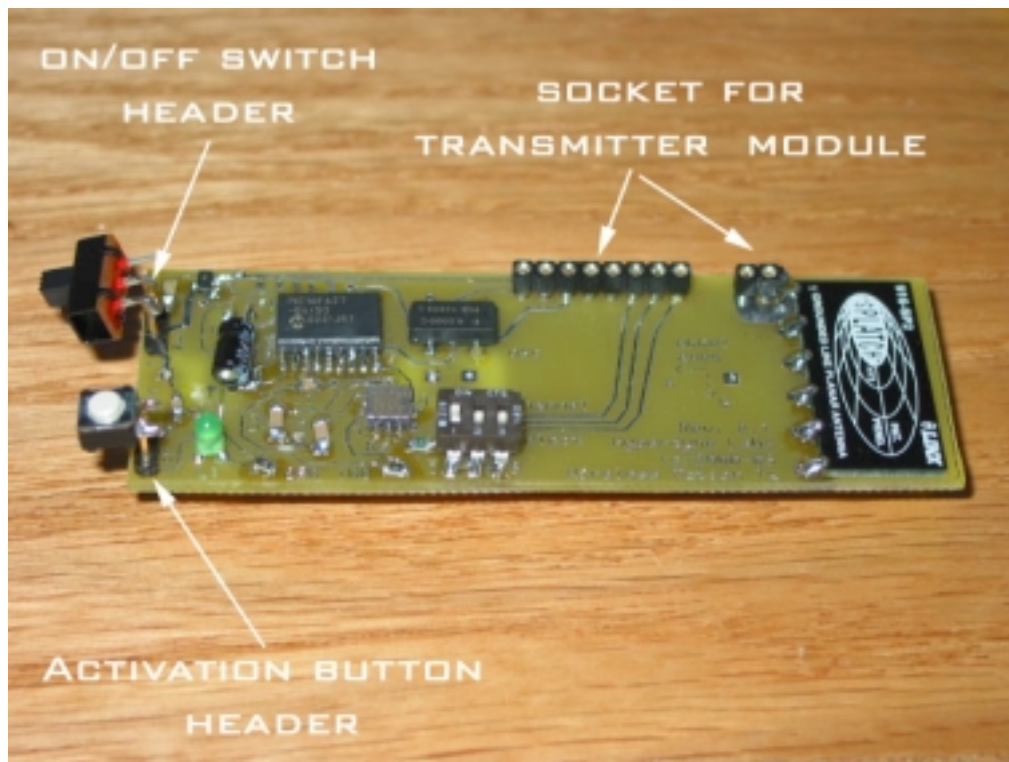
FINISHING THE MOTION BOARD ASSEMBLY

Pushbutton and power switch installation:

The motion board is already assembled, with the exception of the battery connectors, power switch, and activation button. There are 2 pairs of gold headers for the power switch and activation buttons already on the board. You can either solder your own wires or buttons to these header pins, or use the included button and switch.

The next picture of the motion board shows an installed power switch and activation button soldered to the header pins. There are shown for demonstration on how to connect them up. You can wire these up similarly or use extra wire if needed. Note that there is no polarity on either the power switch or the pushbutton.

When the power switch is in the on position, the green LED will illuminate. The pushbutton is used to tell the base station unit that the saber has been activated. So you can power on the motion board without activating the saber "on" sound. The activation/deactivation of the saber sound effects is controlled by the pushbutton.



Motion module board w/ button and switch installed

MOTION BOARD POWER SUPPLY

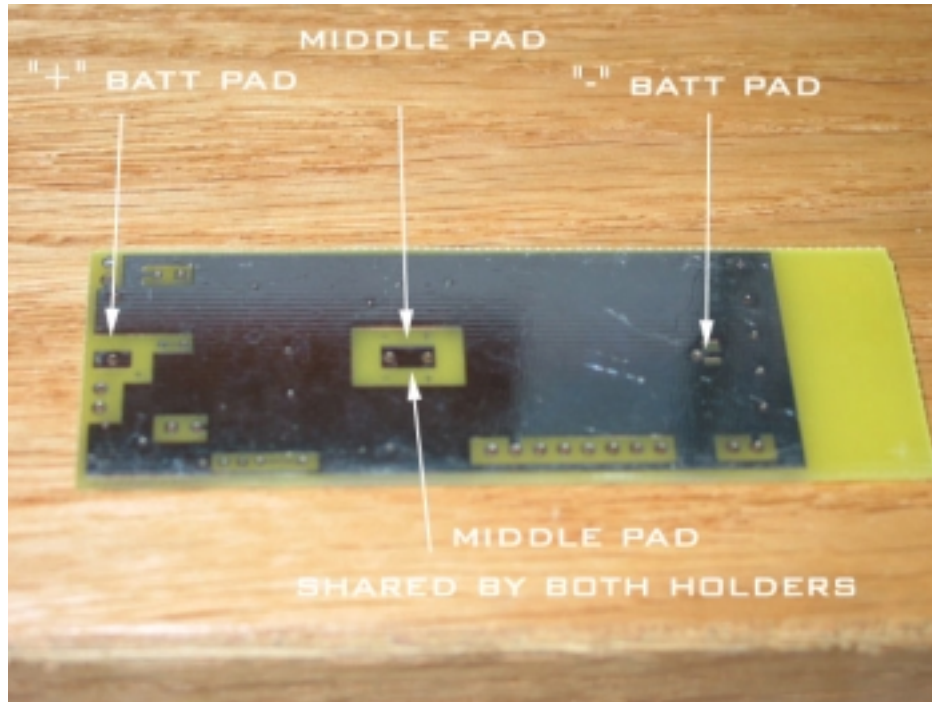
Next, you have to determine if you would like to power the board from a 9V battery or 2 coin cells. If you want to wear the unit on your wrist, the coin cells offer a low profile concealable board option.

Coin cell holders

To install the battery holders, follow these instructions:

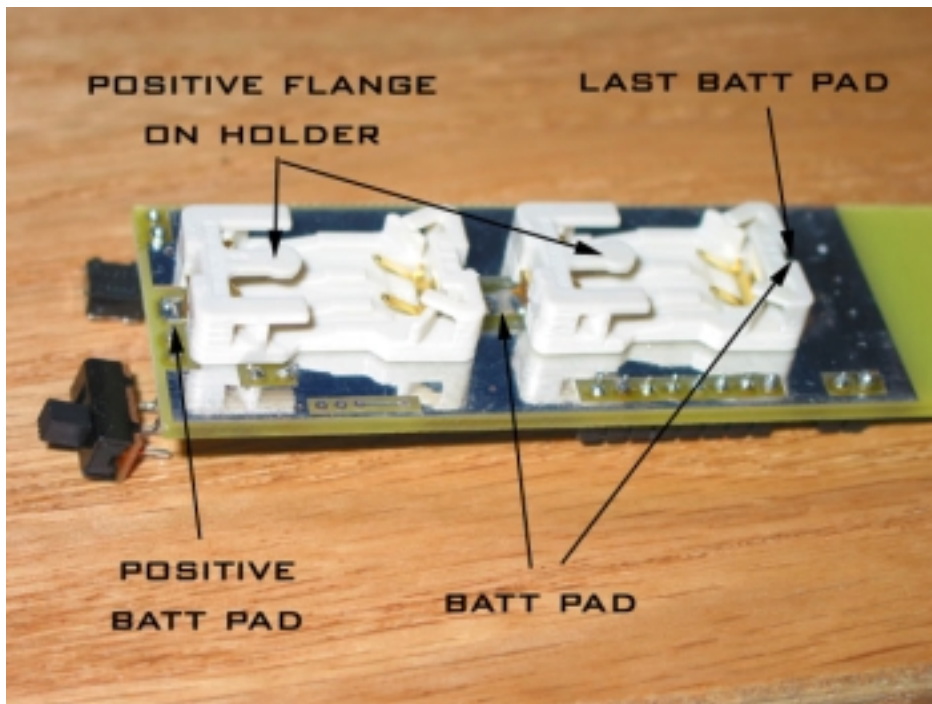
- 1) Locate the 2 coin cell holders. The spoon like plastic flange is the positive side of the battery holder.
- 2) You need to find the pads on the back of the motion board. They are labeled with "+" and "-" signs to delineate polarity. The middle pad is shared by the 2 coin cells. For the middle pad, you just need to solder

both batt holder tabs to the small strip. The next picture shows the batt pads on the back of the motion board.



Coin cell battery pads on motion board

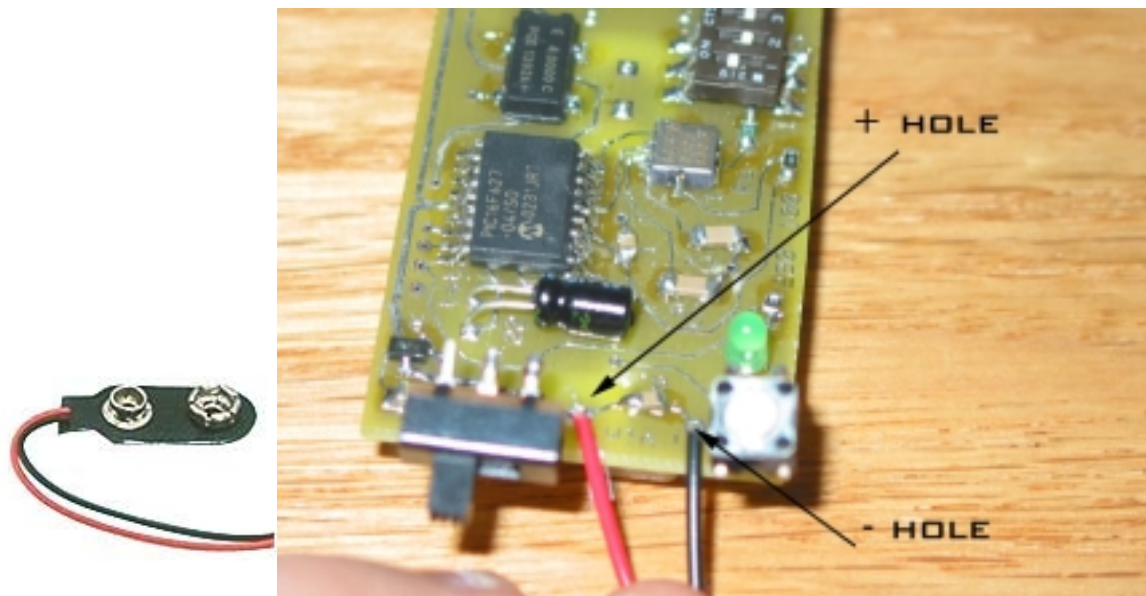
- 3) Solder the battery holders as shown in the below figure. Do not over solder the joints. The last pad that is furthest from the power switch is connected to the silver mask covering the entire back of the board. This silver mask is “ground” and is denoted by the “-“ label. You can solder the last battery tab to the small strip, which will connect to the silver mask. Make sure on the other solder pads that you do not bridge over to the silver mask, since this would short out the batteries.



Coin cell battery holders soldered to the back of the board

9V snap connector

If you would rather run the motion module off a 9V battery (i.e., for permanent install into a saber hilt), then you can solder on the included 9V snap connector. Note the polarity on the connector wires (red and black). On the front of the board, solder the connector wires as shown below. The 2 holes next to the “Vin” label are the power pads. The square pad is the + side, and the circle pad is the – side.

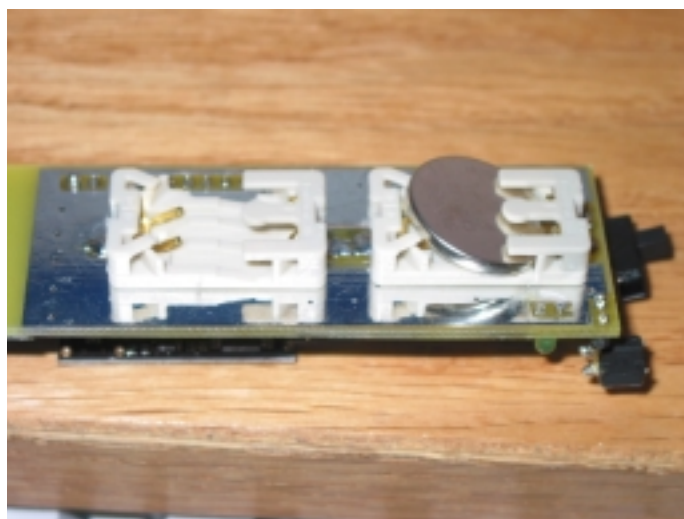


9V snap connector installation

Note: You can have both the coin cell holders and the 9V snap installed if you wish. This will let you use either battery source, as long as you DO NOT use the coin cells and the 9V battery at the same time! A 9V battery will give you more run time than the coin cells, at the expense of a larger battery to carry around.

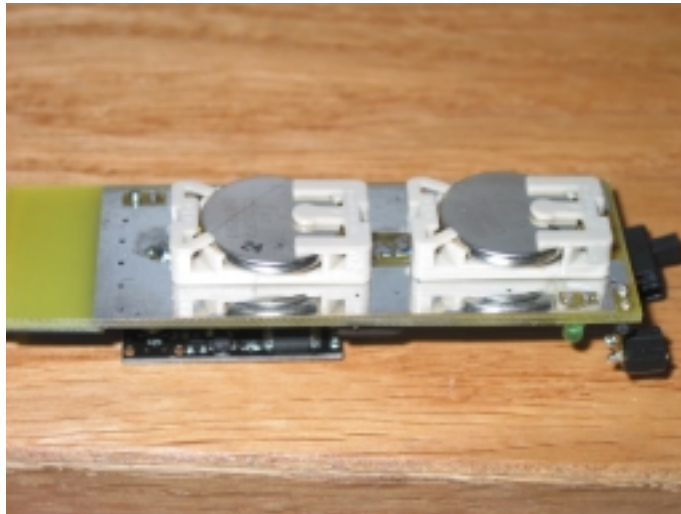
Installing the coin cell batteries

If you are using the coin cell batteries, then you can install them after the holders are mounted. The + side of the battery faces up. Just slide the battery in the holder and snap it down in place.



Coin cell install

Here is a pic of the installed coin cells. To remove the coin cells, just press down on the spoon-shaped flange, and the cell will pop back out of the holder. Be careful not to use too much force!

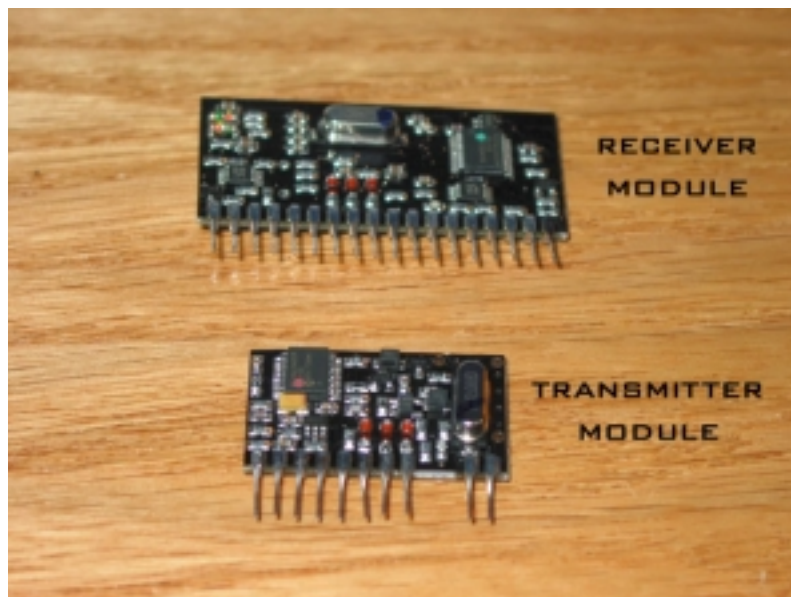


Installed coin cell batts

INSTALLING THE OPTIONAL WIRELESS MODULES

If you are going to make a wireless link, you have to purchase the wireless modules separately. Once you have done this, you can plug them into the motion board and the base station unit to create the wireless link.

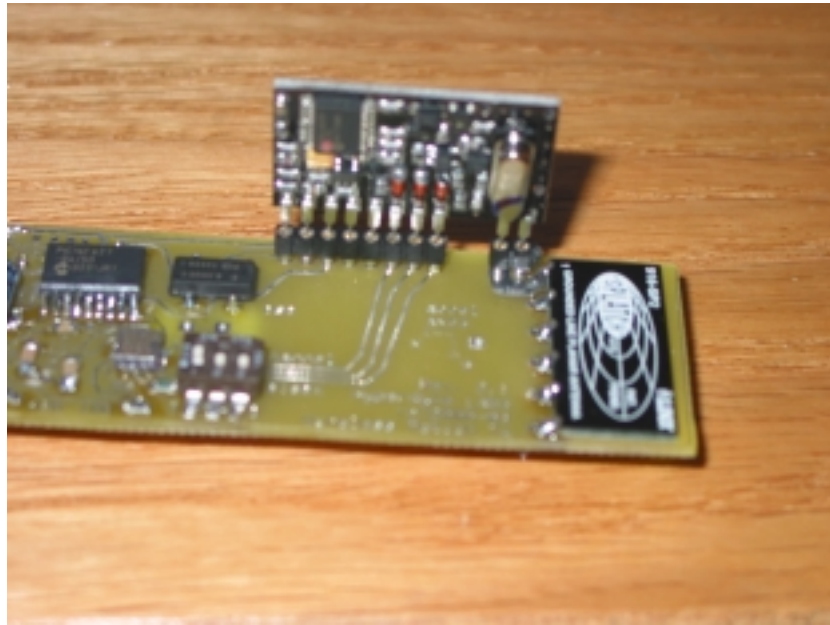
Here is a pic of the modules. The receiver module is the RXM-900-HP_II. The transmitter module is the TXM-900-HP-II.



Handle the transmitter and receiver modules by the sides. You don't want to accidentally static shock the boards and render them useless!

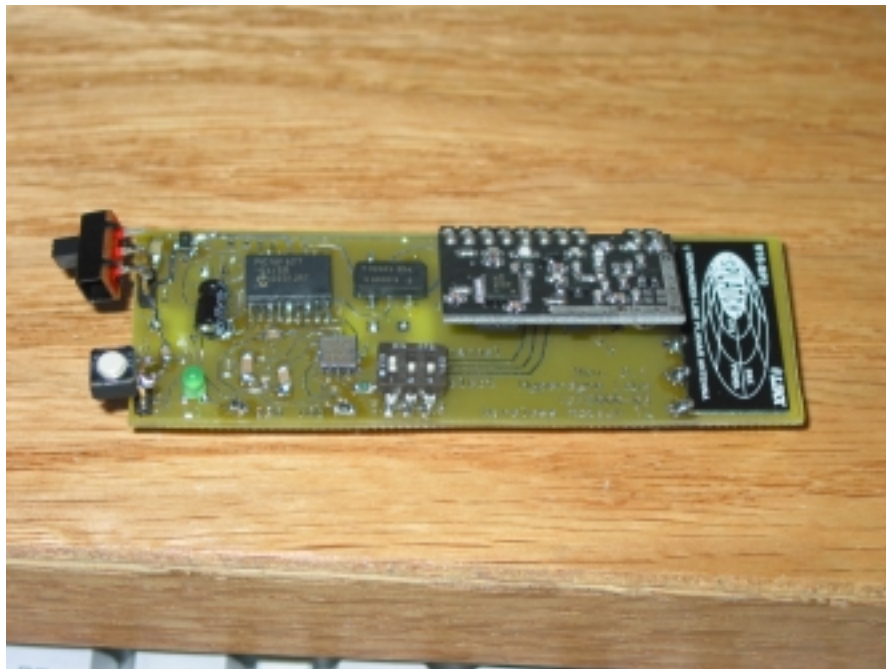
Installing transmitter module into the motion board

Take the transmitter module and line it up with the pins on the motion board. Carefully rock the board back and forth into socket until it sinks down into the socket. Here is a pic of the transmitter module installed in the motion board:



Transmitter module installed

You can bend the module over so it sits as flush as possible with the circuit board. The following pic shows the completed motion board with the wireless transmitter installed.

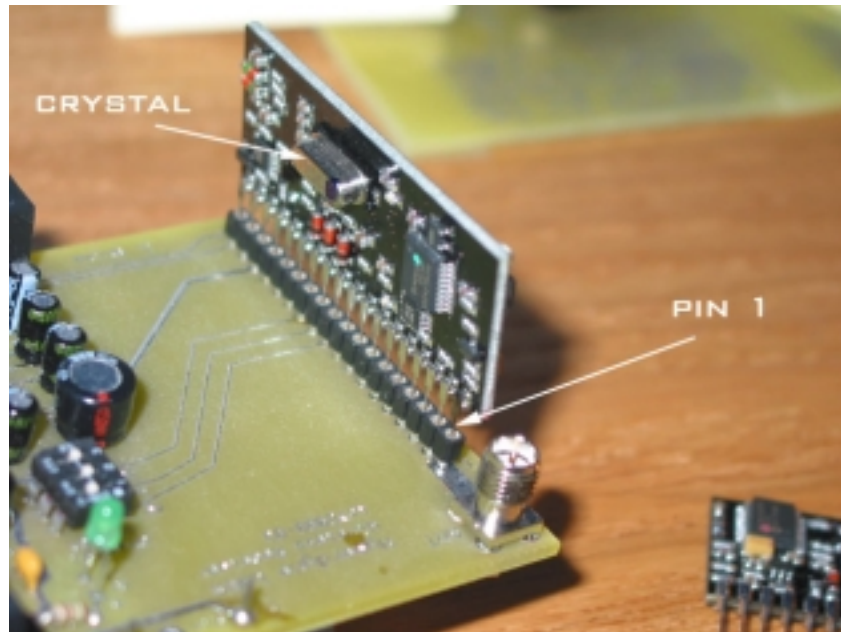


Completed wireless motion board

Installing receiver module into the base station unit

Take the receiver module and line it up with the pins on the motion board. Here you have to install the module with **the small crystal part facing the board**. Note the polarity of the board and install it correctly!

Carefully rock the board back and forth into socket until it sinks down into the socket. Here is a pic of the receiver module installed in the base station unit board. **Make sure yours is installed the same!!! If it is not the board will not work and you risk damaging it!**



Receiver module installed in base station unit

You can also bend the Rx module pins to save space, or just leave it to sit upright. Now just screw in the antenna and the base station unit is completed. Install a 9V battery and it is ready to run.

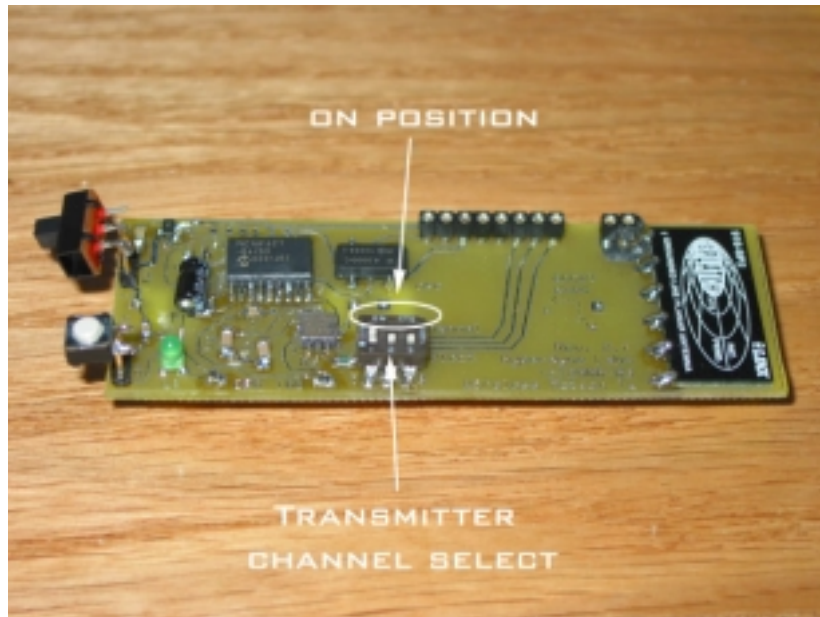


Completed base station unit

SETTING THE CHANNEL FOR THE WIRELESS MODULES

The bottom 2 pictures show the channel select switches for the transmitter module and the receiver module. There are 8 channels available, meaning that you can use up to 8 modules in the vicinity of each other. To make the transmitter module and the receiver module talk to one another, you have to set the channel switches exactly the same. The different channels correspond to different frequencies. It is similar to your cordless phone at home. If one channel is too noisy, you can switch to a different channel to get better reception.

To set the channel for the transmitter and receiver, use a pen or pencil and slide the switches to pick a desired channel. The switches are labeled “1”, “2”, and “3”. Set each switch to ON or OFF and match them on the motion board and the base station unit. In the below pics, you can see the channel switches match up!



Transmitter channel select switches



Receiver channel select switches

Here is a table that outlines the channel selected for each set of switch values

Switch 3	Switch 2	Switch 1	Corresponding Channel
Off	Off	Off	1
Off	Off	On	2
Off	On	Off	3
Off	On	On	4
On	Off	Off	5
On	Off	On	6
On	On	Off	7
On	On	On	8

OPERATING THE UNIT

To operate the unit, attach the batteries to the motion unit and the base station unit. Make sure the channel selects match as stated above. Connect the included serial cable to the base station unit, and the other end goes to your PC's serial port. You need an open COM port in order to operate the software.

NOTE: If you do not have a standard DB9 serial port on your computer, you will need to get either: 1) Internal PCI serial port card or 2) a USB to serial converter box. This depends on your computer and the peripherals it has available to it.

Normal mode:

Turn on the base station unit first. The green LED should come on. The red LED indicates that you are receiving wireless data. ***If the red LED is on, that means you have potential interfering devices in the vicinity (900Mhz cordless phone, computer, etc).*** To rectify this, you can change the channel on the motion unit and the base station unit. You can set the units on a channel that has little to no interference. Any interference will basically limit the distance that the motion unit can be from the base station unit and still receive data.

Turn on the motion unit. The green LED on the motion unit should glow. The red LED on the base station unit should now come on, indicating that the base station unit is receiving data from the motion unit.

If the red LED on the base station unit does not come on, then see the troubleshooting section.

Once the units are on and the above LEDs have been checked, you can move to the software installation section in the software manual.

Range test mode:

Turn on the base station unit first. The green LED should come on. The red LED indicates that you are receiving wireless data. ***If the red LED is on, that means you have potential interfering devices in the vicinity (900Mhz cordless phone, computer, etc).*** To rectify this, you can change the channel on the motion unit and the base station unit. You can set the units on a channel that has little to no interference. Any interference will basically limit the distance that the motion unit can be from the base station unit and still receive data.

Before turning on the motion unit, hold down the saber on activation pushbutton. Now turn on the motion unit while the button is still pressed. The green LED on the motion unit should glow. The red LED on the base station unit should now come on, indicating that the base station unit is receiving data from the motion unit.

The motion unit has now been put into a special range-test mode. The range-test mode allows you to check the distance the motion unit can be from the base station unit and still operate well. This is good for certain environments, stages, or other areas where you need to know the best distance to still conduct a sound session. If

you get too far from the base station unit, it will no longer receive data and you will not hear any sounds based on your motion any longer.

So, it is good to estimate the “optimal” distance where the motion unit and base station unit can work together.

NOTE: The optimal distance depends on many variables. This includes battery power, room size, room shape, interfering devices around the area, etc. Some rooms may offer a better range than others, due to these complex variables.

Once the units are on and the above LEDs have been checked, you can move to the software section on “**Range Test**”

INSTALLING THE MOTION BOARD INTO A CASE

Your package also came with a small plastic case. You can mount the motion board inside the case, and drill small holes for the pushbutton and the power switch. The motion board can be pressure fit, or you can use hot glue to hold it in place.

There is also a slit in the case to fit a Velcro strap through. You can use this in case you want to wear the unit on your wrist or other place on your body.

YOU ARE NOW READY TO USE YOUR WIRELESS KIT TO CREATE THE ULTIMATE IN INTERACTIVE SABER PLAY!

The transmitter and receiver modules are *not* a product of Hyperdyne Labs and must be purchased *separately* and *assembled* with the Saber Sound Kit hardware in order to have a fully operational kit. The modules are *not* certified by the Federal Communications Commission. If they are used in a completed product, that product *must* be submitted to a testing laboratory and FCC certified before it is sold.

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