

GB Proton Pack Deluxe Sound Package – 40W 8 sound version

Hyperdyne Labs, © 2005

<http://www.hyperdynelabs.com>

Sound Package Features

The proton pack sound board package is the ULTIMATE addition for making your pack come "alive". You can even integrate the sound package with our proton pack light board. The sound package includes a custom sound board with custom-made sound effects chip. Sound effects include: A pack powerup sound, hum sound, gun fire sounds, GB theme music, and 2 proton sound bytes.

The pack "powers up" when you power on the unit. You can trigger any of the sounds by using the remote pushbutton cable.

NOTE: The package comes with all electronics tested and ready to be installed. You must install it into your pack. You can use any speakers with the package that you like. The bigger the speakers, the more sound will be projected. Mounting the speakers is also important to get optimal sound.

Since most pack makers want different types of setup, we let the installer hook up the main power switch for the sound package. Some like to connect all the electronics to one main switch, while others might not. Connecting up a suitable power switch is left to each individual to solve during installation.

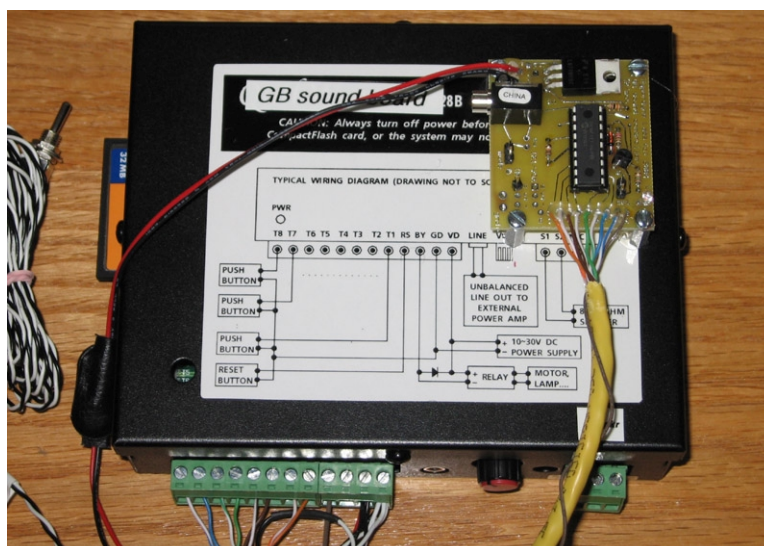
The standard sound package includes all the necessary pieces to turn your pack into a living, breathing machine! The package includes:

- 40W sound board with speaker outputs and volume control
- CD-quality sound effects flash card installed (upgradeable)
- Gun fire cable and pushbutton
- Battery harness to connect up to any 12V DC power supply

A sufficient power supply should consist of two 6V lantern batteries (connected in series), a 12V rechargeable lead acid battery, or 8 D cell batteries (connected in series). This battery setup is needed to power the amplifier.

An earth-shaking setup would be an 8" woofer and tweeter for the startup and gun sounds. Setups will differ based on the available space in your pack.

Here is a pic of the deluxe sound board with controller board:



Unit Operation

Hook up the remote pushbutton cable to the 1/8" jack on the sound controller board (the smaller board) and power up the unit. The pack startup sound will play out when the unit powers on.

To play out a desired sound byte after the pack sound, push the button the desired number of times. After 1 sec of no presses, the sound board will begin to play out the desired sound. For example, to play out sound byte #1, press the pushbutton one time and release. The first sound will trigger after 1 sec.

Upon powerup, the pack startup sound will play out automatically. You can toggle the pack hum sound by simply keying the sound number for the hum, and it will automatically loop.

Your unit also has an auto firing mode. If you press and hold the pushbutton for more than 1 sec, the gun firing sound will automatically start playing out. The sound will continue to play out until you release the button. Once the button is let go the gun wind down sound will automatically follow.

The sound controller board has an LED that blinks each time you press the pushbutton. This can be used to ensure your button is working properly.

If a looped sound or long sound passage is being played out, you can stop that sound at any time by simply pressing the pushbutton 9x in a row. This resets the board and stops the current sound playback.

Here is the list of sounds currently stored on the sound board's flash card:

1. Pack startup sound
2. Pack hum sound (looped)
3. Proton gun wind down sound
4. Proton gun firing
5. Music track 1
6. Music track 2 (GB short interlude)
7. Ghostbuster's theme music track
8. None

Here is a short table describing the operation of the pushbutton:

Button activity	Event
Press more than 1/2 sec	Gun firing playback begins and continues
Release when gun firing sound playing	Gun wind down playback begins
Press less than 1 sec	Used to key in a sound 1-7 above. Press the button the desired number of times to key in the sound number. After 1/2 sec of no button presses the current keyed sound/music track is played out.
Press 9x in succession	Stops the playback of current sound and resets sound board

Speakers

You can hook up any 8 ohm speaker that you require. You can use any size speaker with the sound board. The speaker gets connected to the SP1 and SP2 lugs on the sound board's terminal strip.

Programming other sounds

The sound board uses a standard compact flash card to store all of the sound media.

If you have a PC compact flash card reader/writer, you can custom program any sound bytes onto the flash card. Each sound is stored in raw wav file format. The valid sample rates are 22.050, or 44.1kHz. The files must be mono. They can be 16 bits for CD quality.

For storage onto the sound card, each wav file must be renamed to the desired sound number as it is stored on the board. Using the above list of sounds, the pack startup wav sound has been renamed from packon.001 on the flash card, since it is the 1st stored sound. You do this for all the sound numbers 1-7. So each .wav file will be renamed with an extension of .001, .002, .003, up to .007.

To see this, you can simply copy packon.001 from the flash card to your computer, rename it to packon.wav then listen or edit the file. With this procedure, you can now add, move, or change any of the sound bytes, music, or effects to the flash card to totally customize your sound setup! You can even buy a second flash card to store a second set of sound files, which can turn your sound board into a versatile sound playback system!

Finally, you can simply drag and drop the desired wav files (renamed with the .00x extension) onto the flash card. Do not remove the .cfg file on the flash card, as this sets up the sound board for proper operation.

NOTE: You can even add an 8th sound if you like, presently there is not one on the board. Just copy a wav sound file with the extension .008 to the flash card! To play the sound key the pushbutton 8x.

Hookup and Installation

Installation consists of finding the space in your pack to mount each component and then wiring all the components together. You need to mount the sound board, amplifier, speakers, and battery pack all in your pack.

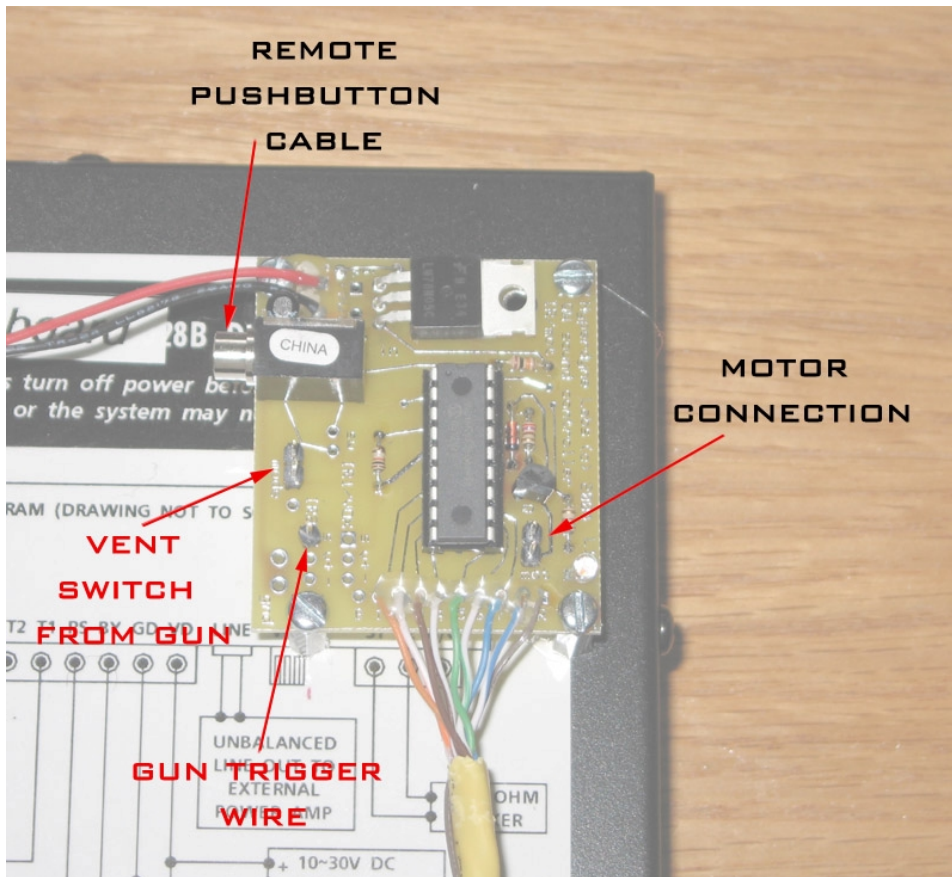
Sound board controller connections:

The sound board controller is the small board that hooks into the black cased sound board. All wire connections are already made. The 1/8" jack on the controller PC board is for the remote pushbutton cable.

Controller board connections:

The controller board has extra connections that are compatible with our GB gun light board kit. You can also add a small pager motor to the controller board to make your wand vibrate when the firing sound is being played out.

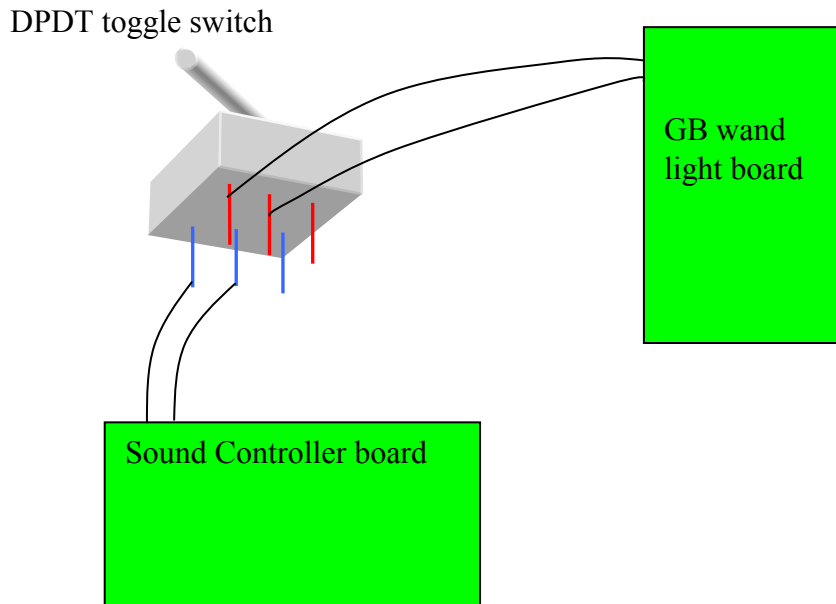
Next is a picture of the controller board showing the extra connection pads:



With the gun trigger wire hooked up to the controller board, the gun trigger input will synchronize our GB gun light board kit with the firing sounds. You can run the gun trigger wire from your gun light board to this input on the controller board.

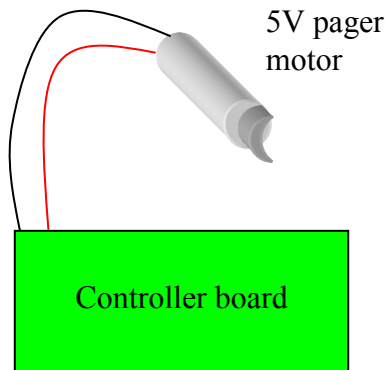
The vent switch is the slide/toggle switch also used on our GB gun light board. This allows you to automatically play out the pack startup sound when you flip the vent switch (ala GB1). If you use a DPDT toggle switch, you can connect one pole to the GB gun board and the other pole to these pads. When you turn on the vent switch, the white internal gun light should illuminate, and the sound board will play out the startup pack sound.

Here is a diagram showing the proper vent switch connections to the sound controller board and the gun wand board using a DPDT toggle switch:



Motor connections:

You can also wire up an optional pager motor to add a vibration effect to your wand! All you have to do is wire up a pager motor that will operate off 5V DC. The board has diode protection for the motor, all you have to do is wire up the motor and solder it up to the pads:



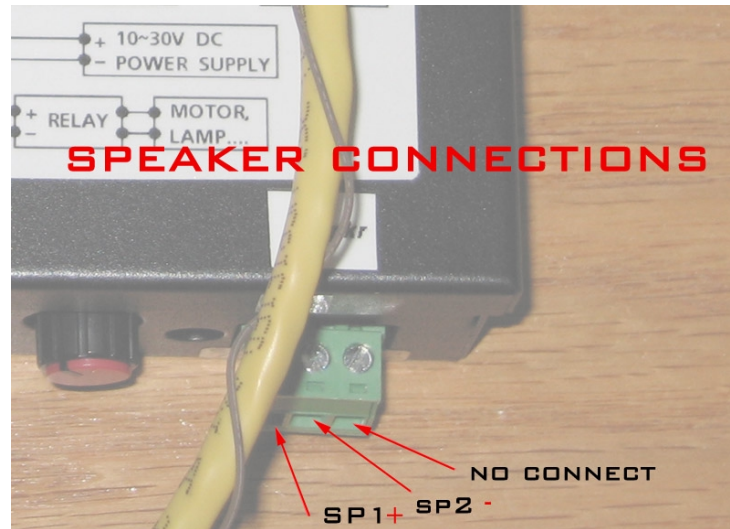
Power supply connections:

The other connection is the power supply. The sound board will accept 12V DC. Plug the unit in using the included battery holder or any DC 12V source. The wires coming off the board are labeled power. The lighter colored wire is also positive wire. The black or darker wire is always negative.

The on/off switch is already connected as well. You can replace it with any slide switch, pushbutton, or toggle switch if you like. Once you power on the unit, both boards come on at the same time, and the startup pack sound with automatically play out.

Speaker/amplifier connections:

The amplifier is integrated into the sound board. All you have to do is connect wires to the speaker terminal SP1 and SP2. Connect the + speaker wire to SP1 and the – speaker wire to SP2. Here is a pic showing this:



The volume control is also located on the black housing.

Installation Tips

Make sure that you have enough room in your pack to install the sound board and amplifier. Calculate the space you have and make a diagram of where the boards will fit best.

Do not cram the boards in a tight space. Give them a little room to breathe, as the amplifier will get hot when the volume is turned up. Treat it as you would a home stereo amplifier.

NOTE: Handle your board 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.

Install the speakers in a large enough area like the cyclotron. Make sure that the speaker is exposed to free air so that it will project the most sound.

The physical placement of the woofer is not as important, as bass waves are non directional. The gun sound speaker is more critical to placement since higher frequencies are directional in nature.

If you do not have enough room for one big speaker, you can use 2 smaller speakers. The amplifier needs at least 12V to operate efficiently. If your batteries are weak, the amplifier and sound board can begin to behave unpredictably!

Install in a GB pack – motherboard

Here is a pic of the system installed on the inside of a proton pack motherboard. The proton pack shell will fit over the motherboard. You can run the trigger wires and all control lines to your proton gun to control the entire pack from your wand!



NOTICE: There is no warranty on kits!! It is your responsibility to install the board. Kits cannot be returned! This kit can consume a lot of current. Be careful if you plan to use a battery source that is capable of delivering a lot of current. Contact a professional if you need assistance. Hyperdyne Labs assumes no responsibility for the misuse of this kit.