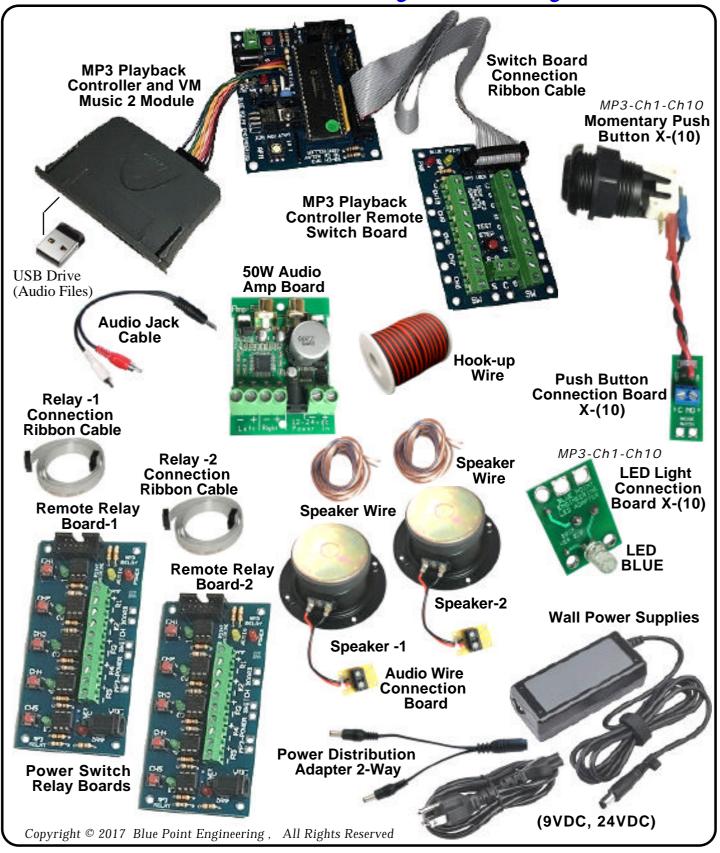


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10-Ch MP3 Audio / Relay / LED System

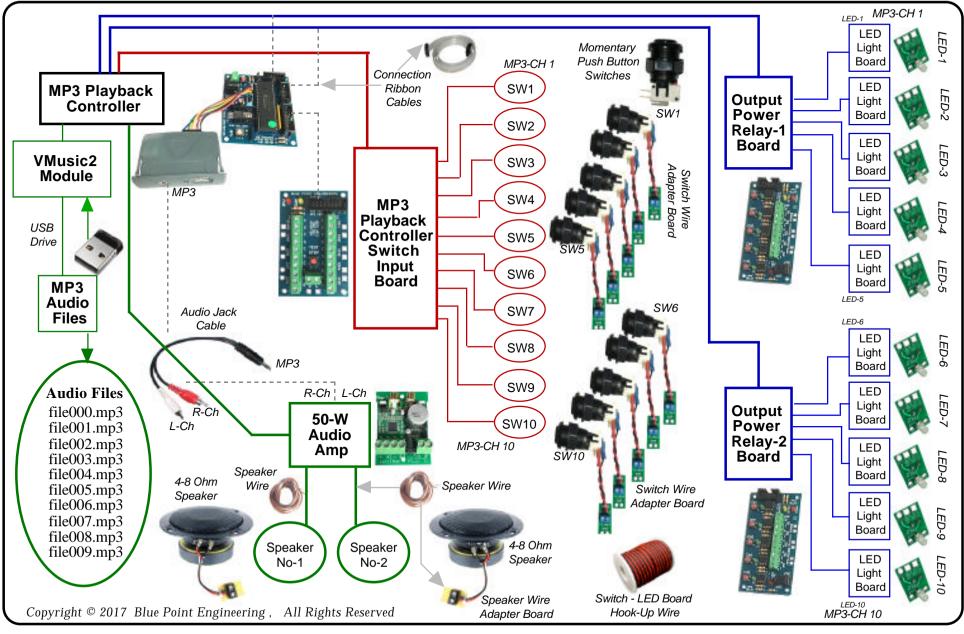






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10-Ch MP3 Audio / Relay / LED System - OVERVIEW SETUP

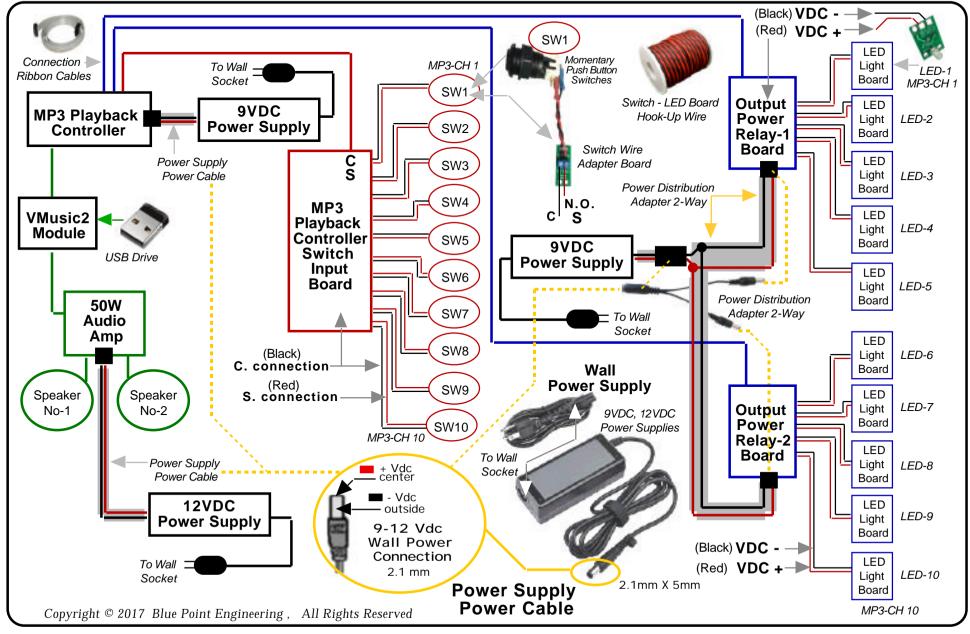




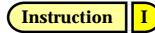
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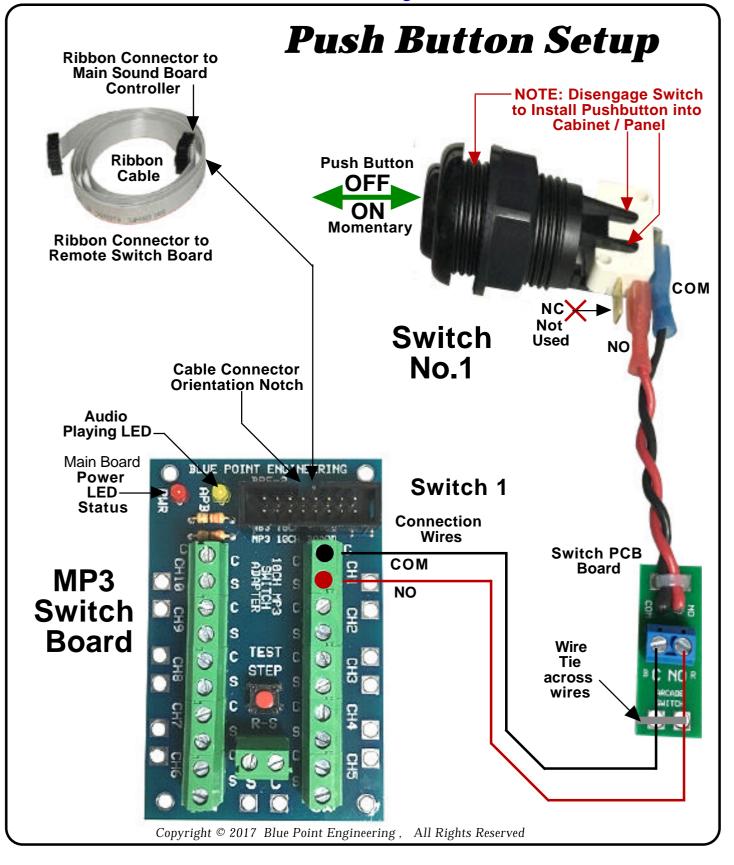
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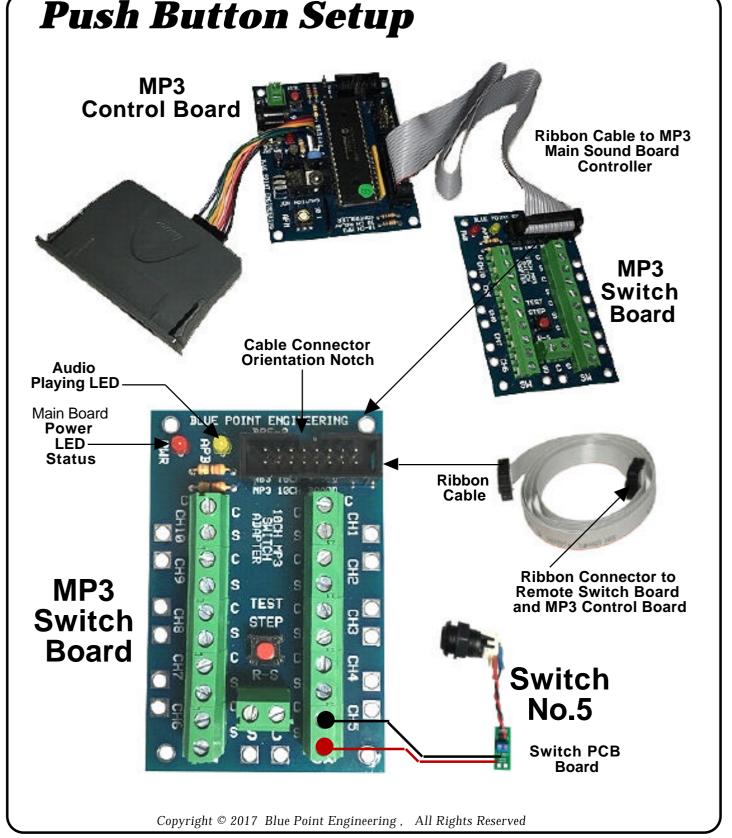
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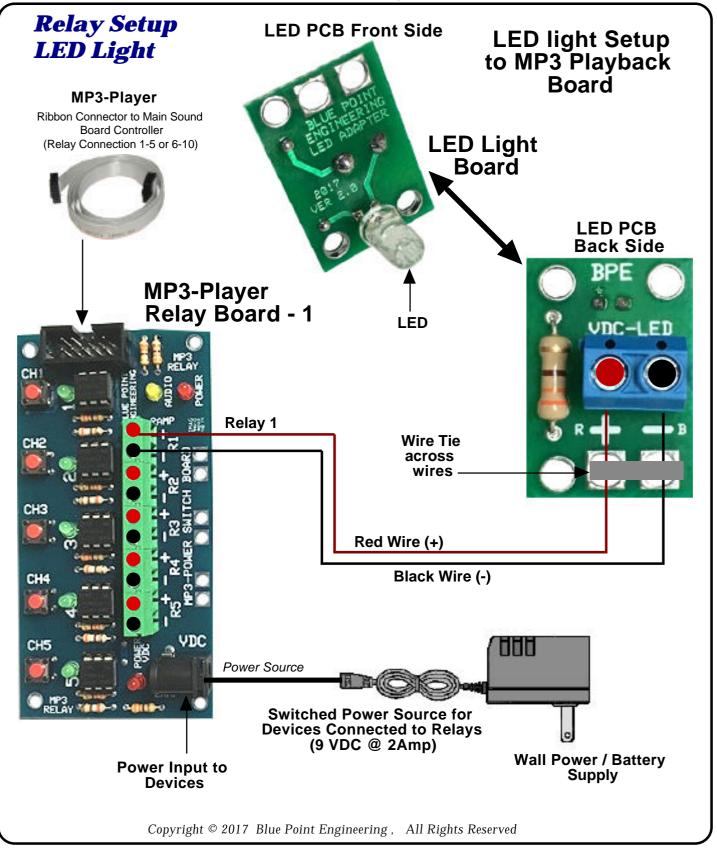




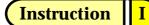
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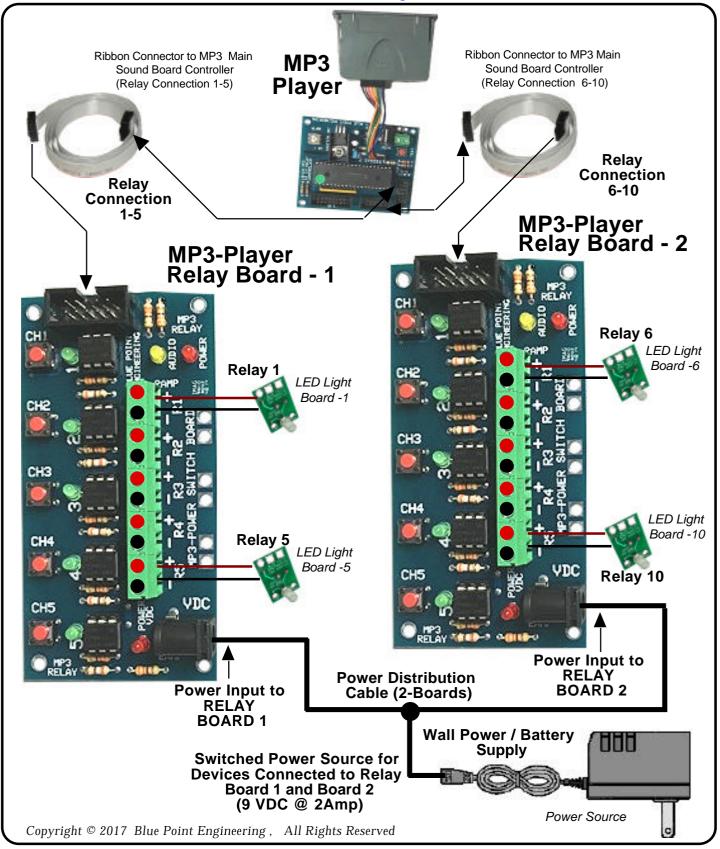
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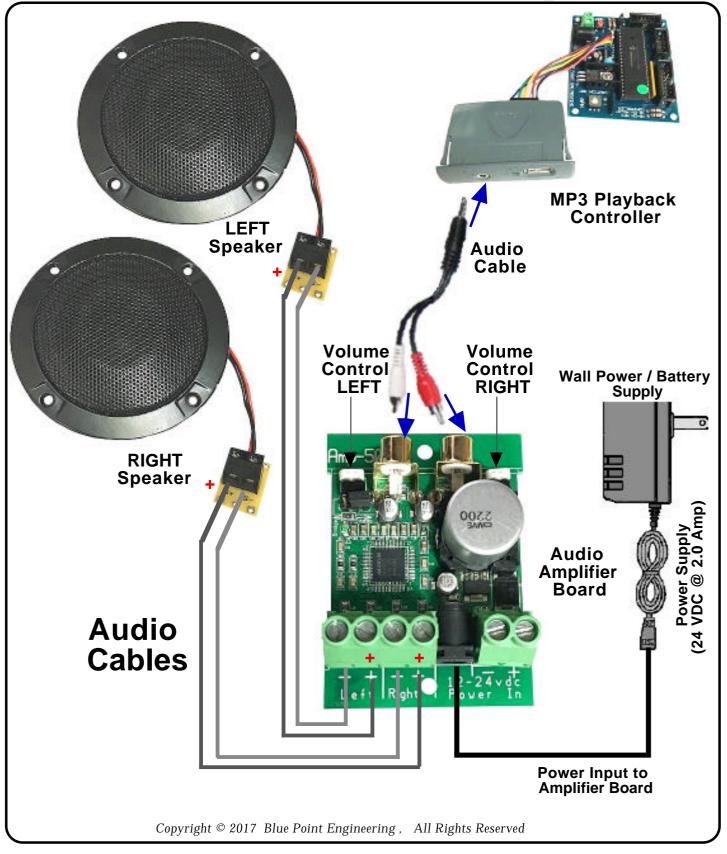




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10-Ch MP3 Audio / AMP -50 Setup

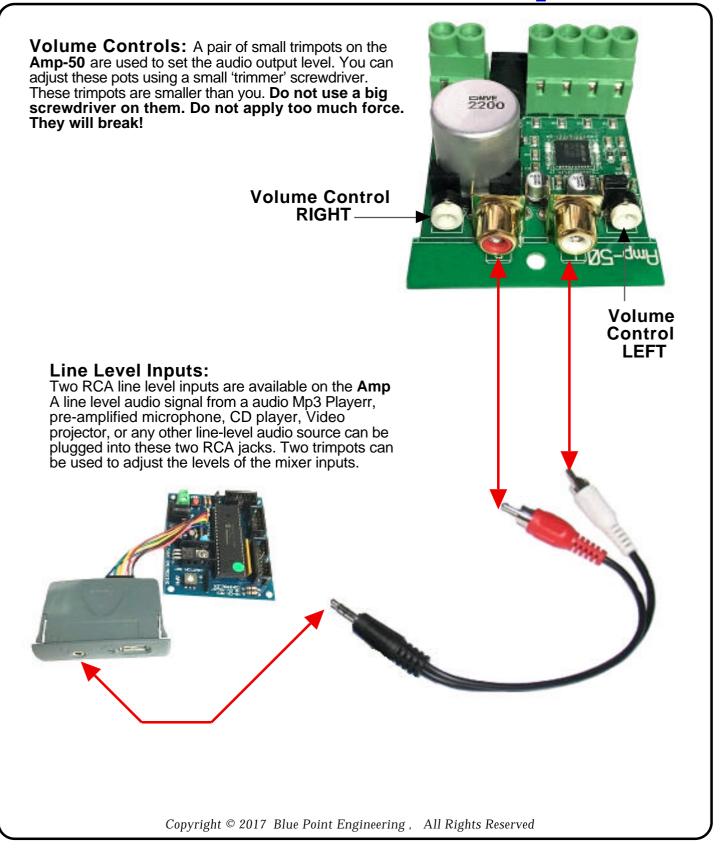






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10-Ch MP3 Audio / AMP -50 Setup

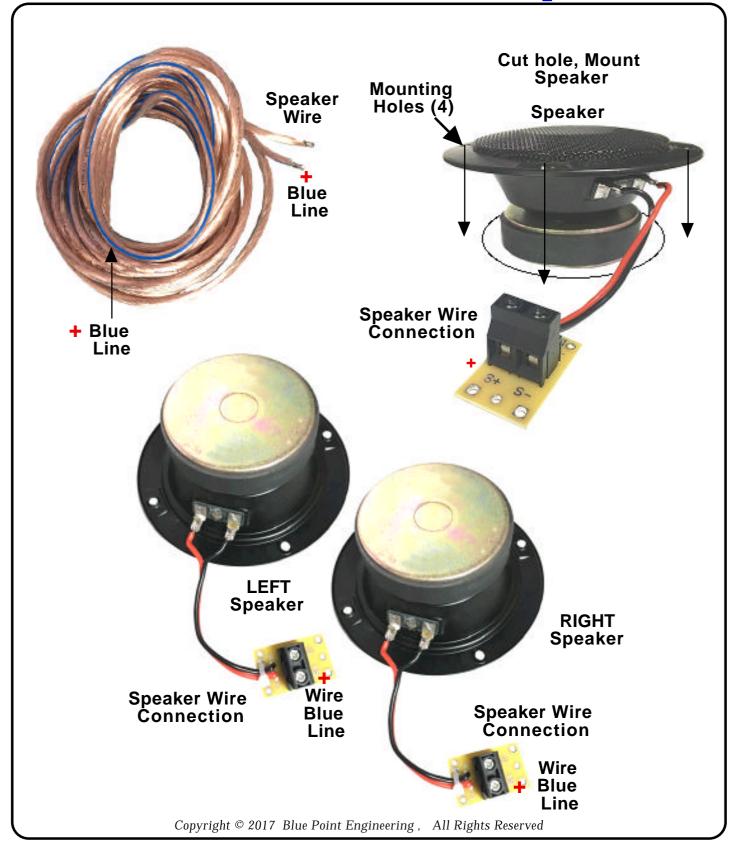






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10-Ch MP3 Audio / AMP-50 Setup





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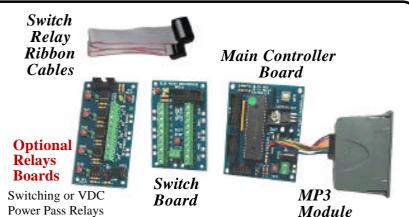
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 10-Ch MP3 Audio / Switch / Relay Control

10 Ch Sound Board Description:

This unique advanced MP3 controller system is designed to control the playback of 1 to 10 MP3 audio files that have been recorded by the user on to a flash USB memory storage drive. The audio files can be selected individually by activating manual 1-10 remote push button switches or by the activation of dry closure contacts like relay outputs, sensors attached to the



Switch Interface Board. The audio files can also be stepped through sequentially or selected randomly by a single remote push button switch or contact closure from a remote relay (Relay Outputs) on the Remote Trigger Connector located on the Switch Board or on the Main Controller Board test button.

Optional Relay Setup: When a audio file has been triggered for playback, an associated channel solid-state relay on the optional remote attached relay board will be activated ON/OFF at the same time. These relays can be used to switch ON/OFF other devices while audio is playing, like lighting, special effects boards, pneumatics, or activate other controller boards for as long as the audio file is playing. The controller will wait until the sound file has finished playing to turn OFF the solid-state relay channel and before it can be activated again to prevent broken playback of audio tracks and false triggering of the relay boards.

There are 2 different types of optional remote connected relay boards available that connect by cable to the controller board. One optional remote connected board has five - 2 Amp solid state relays acting as ON and OFF switches when triggered and the other optional connected board has five - 2 Amp solid state relays set up to pass VDC through each SS relay to connected devices when activated ON and OFF. All relays have an indicator LED and a test button associated with them to show when the relay is ON. The Switch Interface Board and the 2 remote relay boards are attached to the Main Board via flexible ribbon cables.

Set Up: (with / without optional relays)

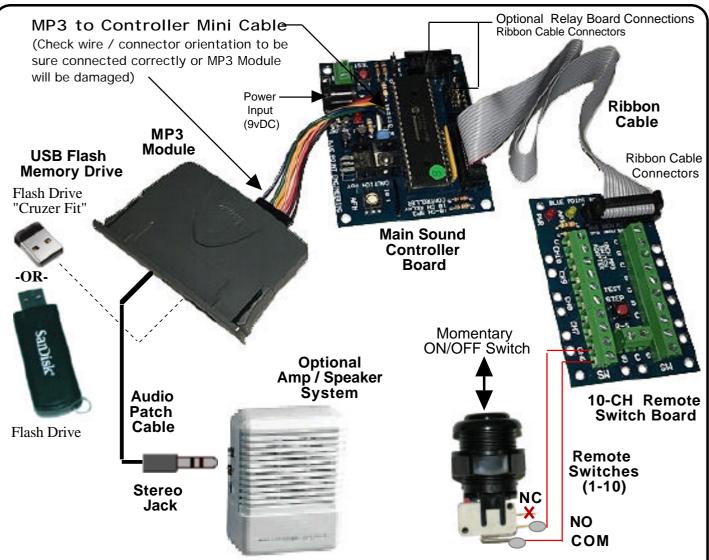
Attach 1 or 2 of the optional Solid-State Relay Boards and the Switch Board to the Main Control Board via the ribbon cables (see drawings). The optional 1 or 2 Solid-State relay boards can be attached to either of the relay header connectors on the Main Board. (Note: connector can only go on one way, check orientation to make sure connected correctly, notch and block match up on headers of ribbon cables).

Attach remote switch 1-10 (see drawings) sensor or connect dry contact relays to the associated switch terminal blocks 1-10 on the Switch Board. Connect the Switch Board to the switch header connector on the Main controller board (Note: again, check orientation to make sure cable is connected correctly).

Connect the MP3 Module to the Main Controller (watch orientation of mini cable to main control board (Blue Wire) and Mp3 Module). Connect a stereo audio cable to the audio output jack on the MP3 player module on board the controller board and the other end to a powered amplifier / speaker for sound (see drawings).

Connect a regulated 9.0 VDC at 900 mA or more power supply to the power jack or Plus and Minus power wires to the terminal power block if not using the quick power jack connector.

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Operation:

To use this MP3 Playback controller board, you must first store 1 to 10 true MP3 files of audio on a <u>formatted</u> (see USB formatting) USB flash drive. The audio files can be any length in time up to as big as the USB Drive is in memory.

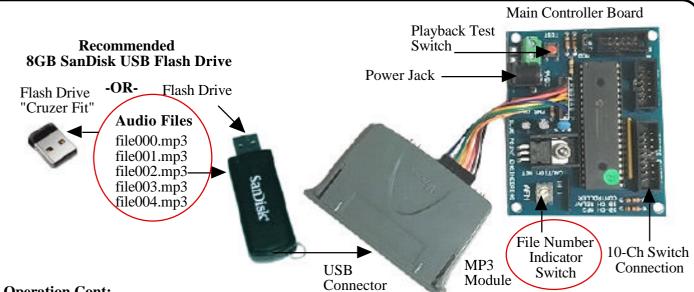
These audio files on the drive must be named as follows: The first audio file must be named "**file000.mp3**". The next file must be named "**file001.mp3**" and so on to the last audio file named "**file009.mp3**". You can have as many or few audio files as you want up to 10. If you had 10 audio files, the last file would be named "**file009.mp3**",

(**Remember you started at file000.mp3**). When naming the audio files, do not skip any numbers. Remember the MP3 files can be of any audio length up to the total storage capacity of the USB flash drive (1 sec to multiple Hrs of audio playback).

Once you have recorded your files, you must set the **File Number Indicator Switch** (see drawings) located on the **Main Controller Board** to indicate to the on board micro processor how few or many files you have stored on the USB Flash drive up to 10 total. For example, if you only have 5 MP3 files on the drive, they would be named: "**file000.mp3**", "**file001.mp3**", "**file002.mp3**" "**file003.mp3**", "**file004.mp3**" and you would set the File Number Indicator on main board to **position 4** (0, 1, 2, 3, 4 = 5 files, Remember you started at **file000.mp3**)

NotE (Yellow LEDs on boards are used to indicate Audio files loading, playback action occurring or audio file troubleshooting issues)

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Operation Cont:

Insert the SanDisk USB flash drive into the USB connector on the MP3-VM2 Module (Gray Module) and turn on the power. You will see green, yellow LEDs on each of the remote relay boards and switch board come on if attached indicating that power is on and sound files are Loading (vellow LEDs). You will also see a flashing red and green LED on the MP3-VM2 (Gray Module) next to the inserted USB flash drive. This LED indicates that the MP3 module is initializing. When it glows a solid green, and the yellow LEDs turn OFF then the controller board is ready to use. The yellow audio playback LED's will turn ON indicating audio playback action is occurring and turn OFF when audio playback is completed on first startup and on any audio playback activity.

There are **three modes of playback operation**, (see setup mode drawing pages) which are selected by moving the selection Mod Jumper located on the main controller board. The three modes are: Individual, Sequential and **Random** playback.

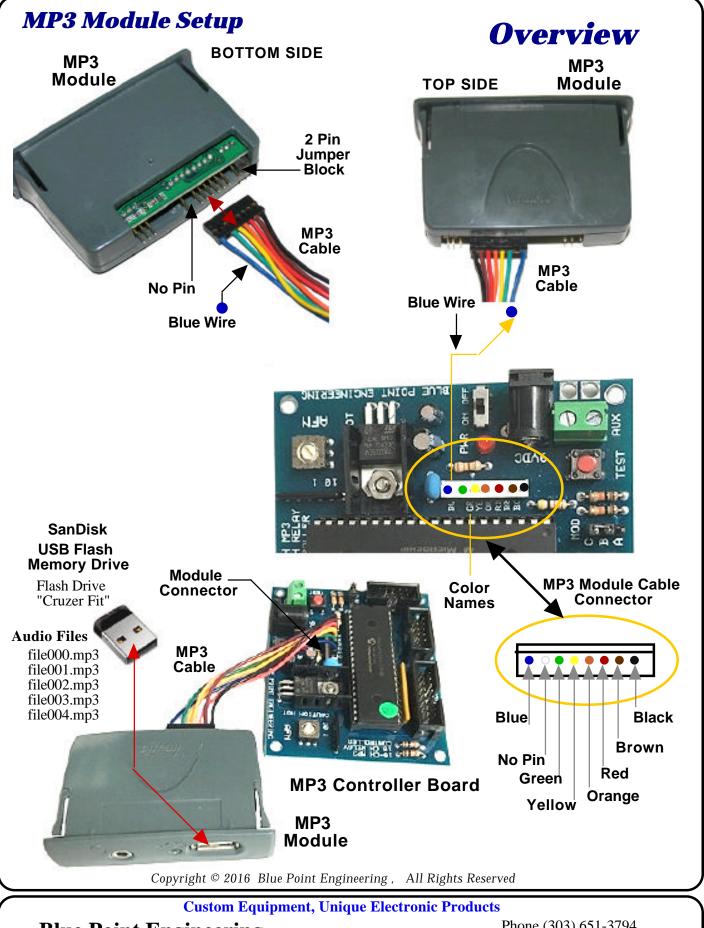
Individual Mode: (Mod Jumper is moved to C-B position on main controller board) Pressing any one of the remote Channel Switches 1-10 will activate playback for that selected channel. The yellow audio playback LED's will turn on indicating audio playback is occurring and turn OFF when audio playback is completed. NOTE: The controller will wait until the audio file has finished playing for that selected channel and also turn OFF the optional SS relay if attached before another audio file can be activated by the remote attached switches.

Sequential Mode: (Mod Jumper is moved to C-B position on main controller board). Audio files are played starting at file1 (file000.mp3) and move to highest numbered file each time triggered. You will use a remote single push button switch or a remote relay contact closure attached to the Remote Trigger Terminal blocks on either the Main Board or the Switch Board. Every time the Remote Trigger is activated (Push button Switch, or optional remote Relay is activated, the controller board cycles through the audio files sequentially and plays it back to the attached powered audio amp / speaker module. When the last highest numbered audio file is reached in the play list, (10) (Max file = file009.mp³) then the next audio file triggered will restart at audio file1 (file000.mp³). The controller will wait until the audio file has finished playing and also turn OFF the optional SS relay selected channel if attached before it can be activated again.

Random Mode: (Mod Jumper is moved to A-B position on main controller board). You will use a single dry remote relay contact closure or a remote single push button switch attached to the Remote Trigger Terminal blocks on either the Main Board or the Switch Board. Every time the Remote Trigger is activated (push button switch, or optional external relay activated, the controller board picks an audio channel file randomly and plays it back to the attached powered audio amp / speaker module. Again the controller will wait until the audio file has finished playing and also turn OFF the SS relay before it can randomly select another audio file.

Playback Options:

If you want the audio file / channel to play over and over, (looping) option in sequence or random, then simple short the remote push button switch channel needed together with a short piece of wire. The controller will playback and wait until the sound file has finished playing, turn OFF the SS relay before it will automatically step to the next audio channel or select a random number channel for playback until the wire loop is removed. This wire loop can be placed on any single channel or in the random / sequence wire terminal block on the main controller board or on the remote switch connection board.





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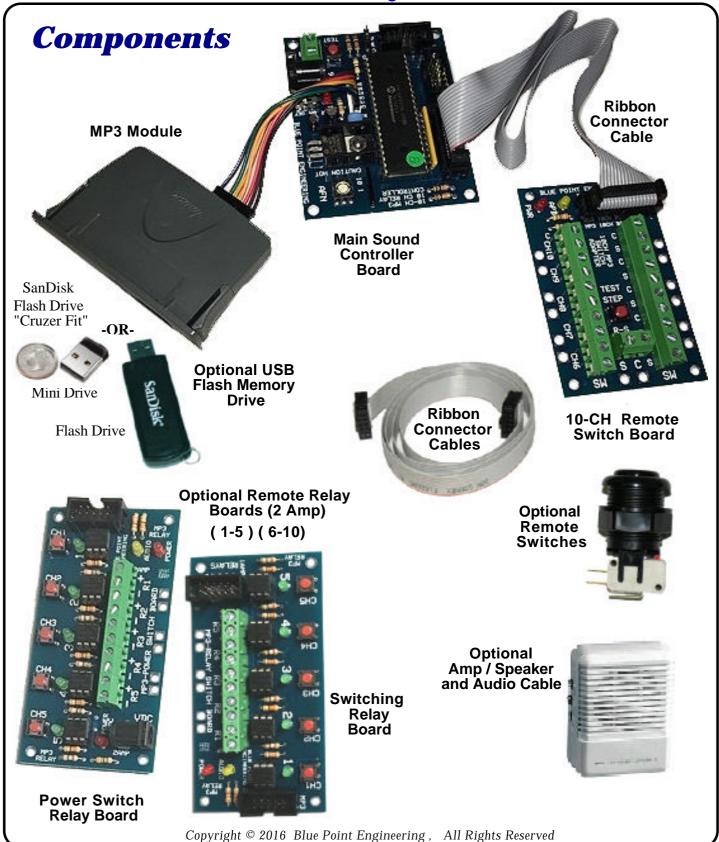
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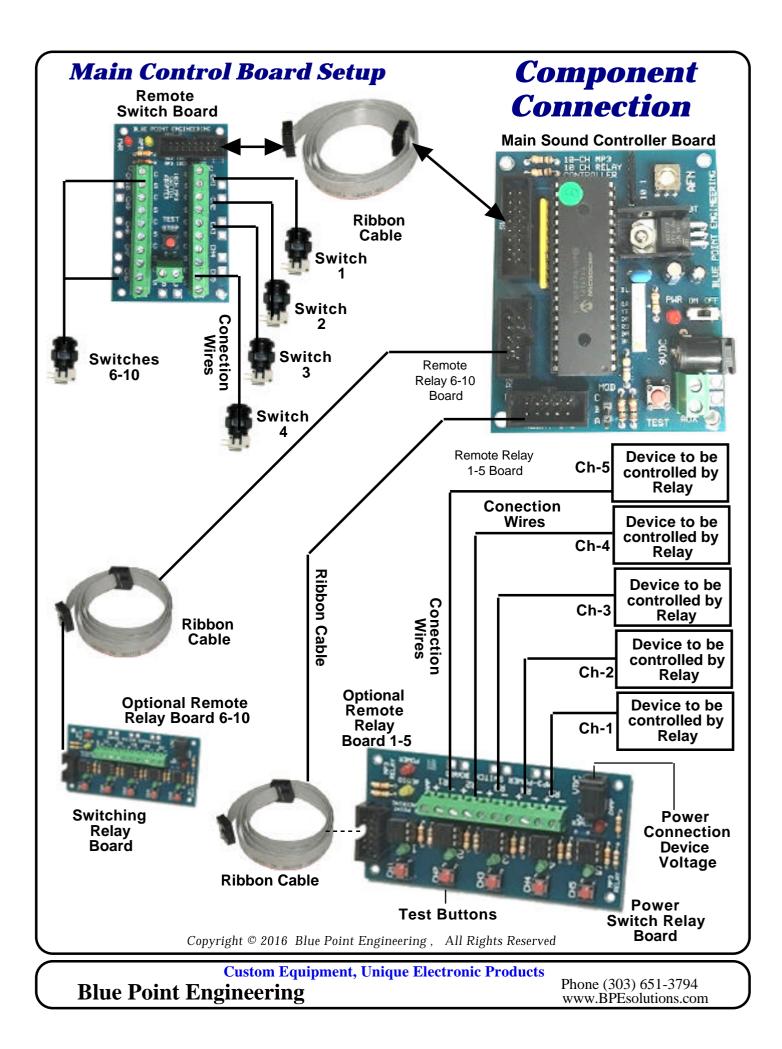


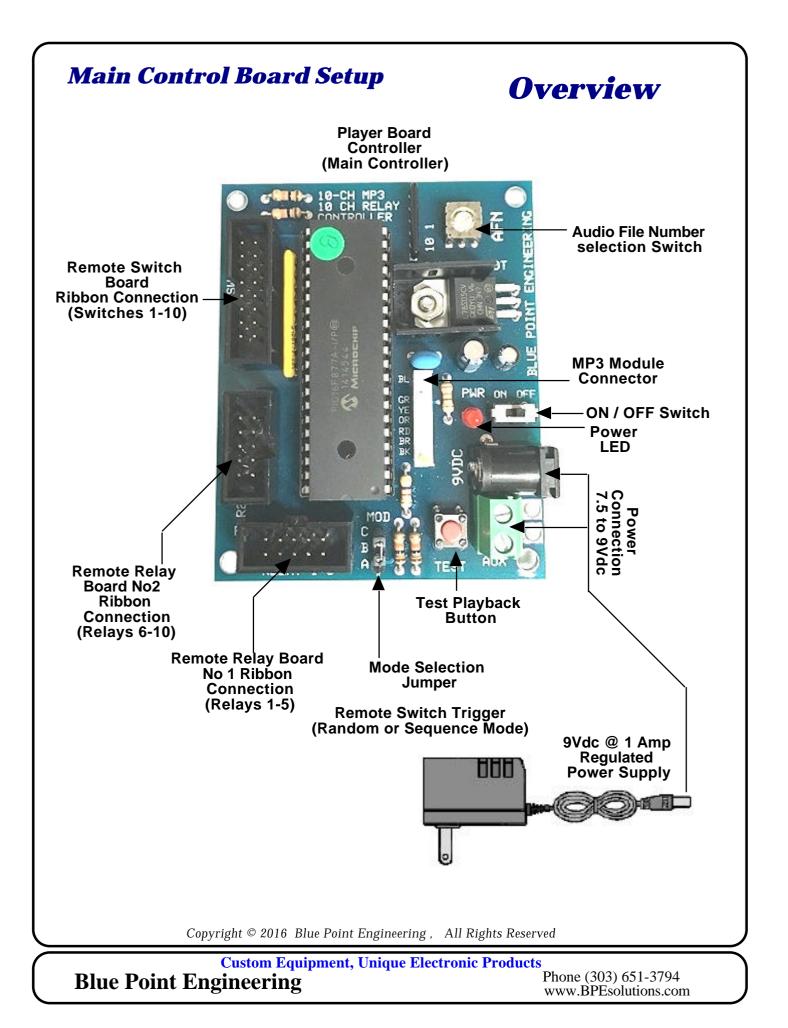
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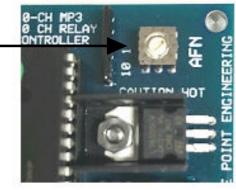




Main Control Board Setup

Main Controller Board

Audio File Number Selection Switch



You must set the **File Number Indicator Switch** located on the Main Control Board to how many files you have stored on the USB Flash drive. For example, if you only have 5 MP3 files on the drive, they would be: "**file000.mp3**", "**file001.mp3**", "**file002.mp3**", "**file003.mp3**", "**file004.mp3**" and you would set the File Number Indicator switch to **position 4** (0, 1, 2, 3, 4 = 5 files, Remember you started at **file000.mp3** (**Switch Position 9 = 10 audio Files**)

Manual - Random - Sequence Playback Selection Jumper PLAYBACK MODES

Control Jumper



²³⁴ 587⁶

Audio File Number Switch

> Manual Mode (CH 1-10) (Jumper BC) Playback Channels 1-10 when Switch 1-10 are manually activated

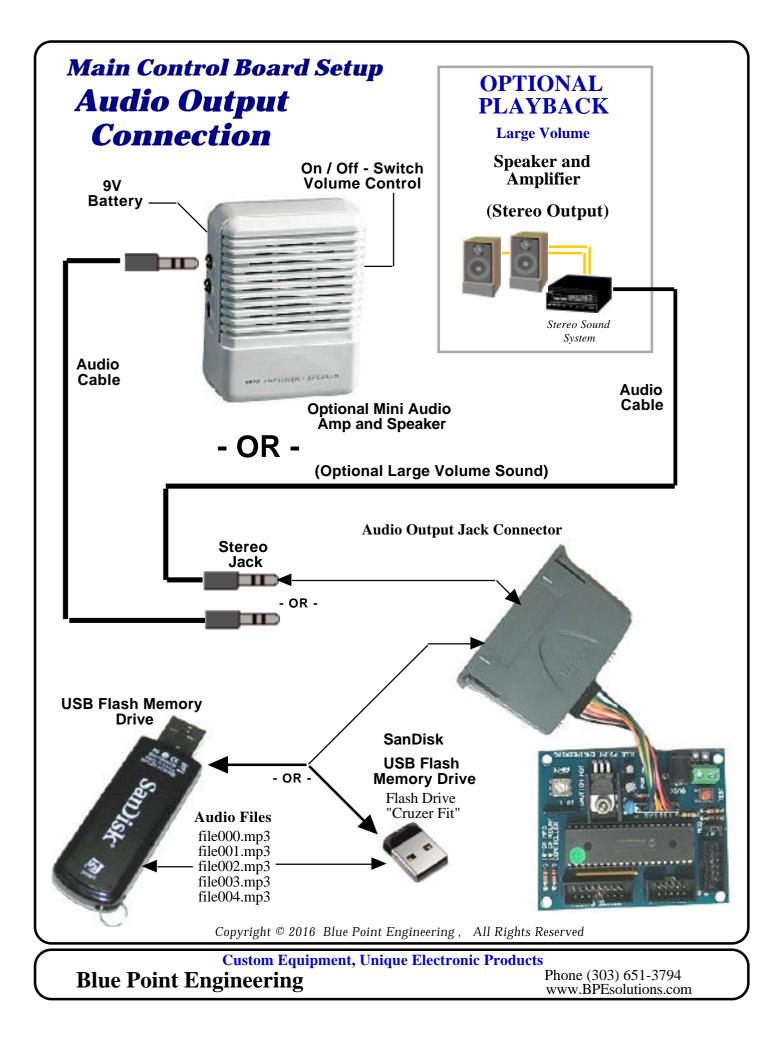
Sequence Mode (Jumper BC) Random Playback Channels When SINGLE Trigger Switch is Activated also Manual channel selection Mode (CH 1-10)

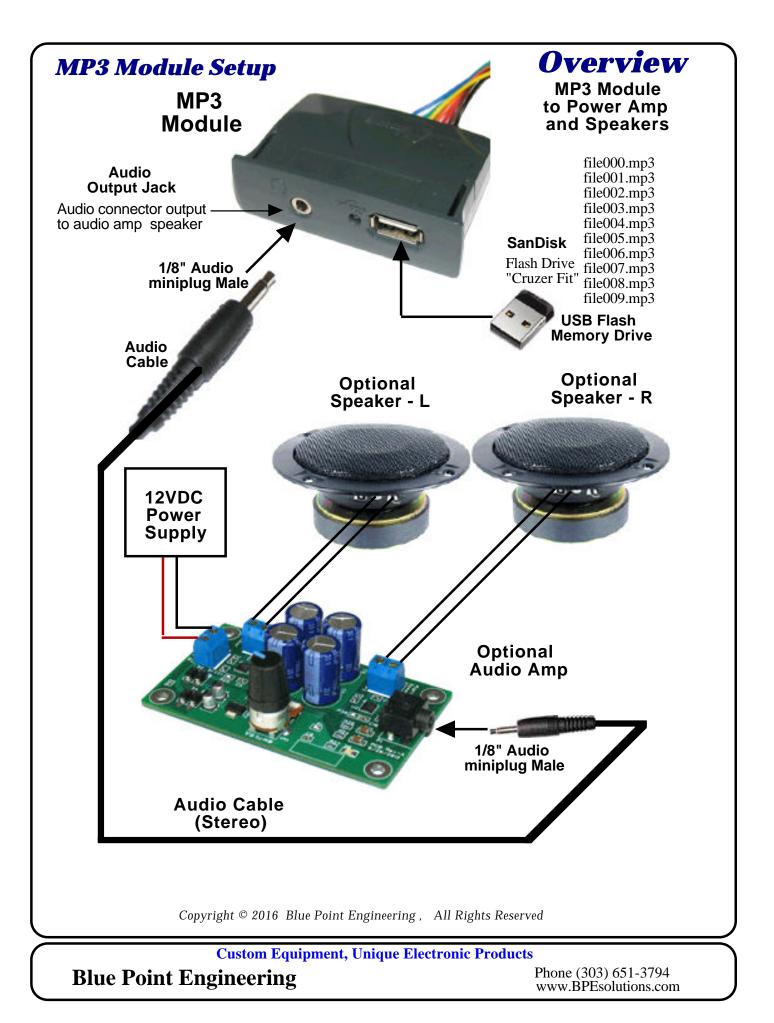


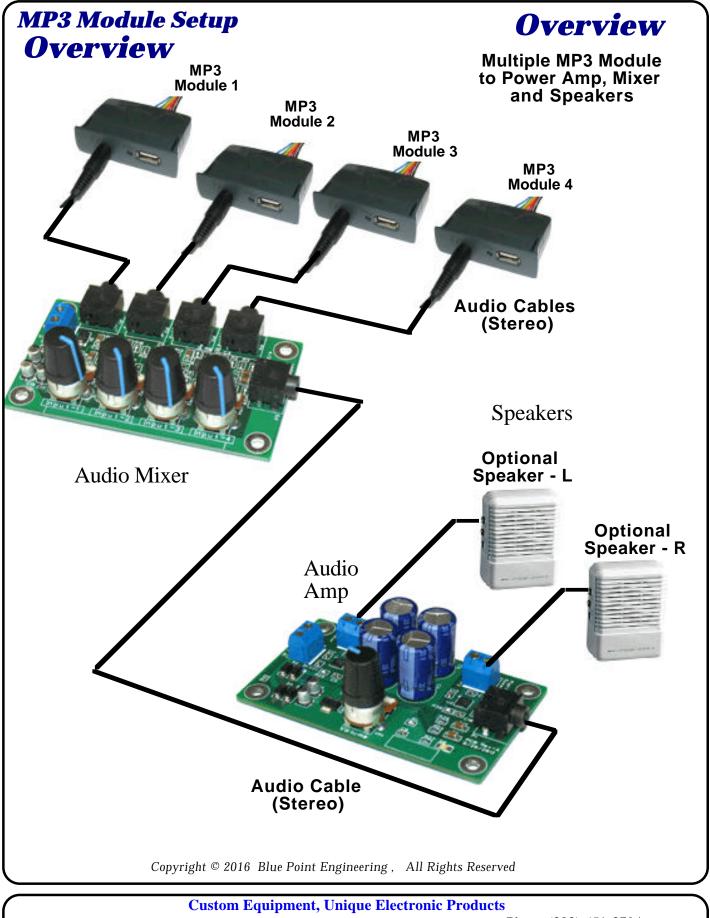
Random Mode (Jumper AB) Sequence Playback Channels 1-10 When SINGLE Trigger Switch is Activated

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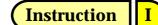
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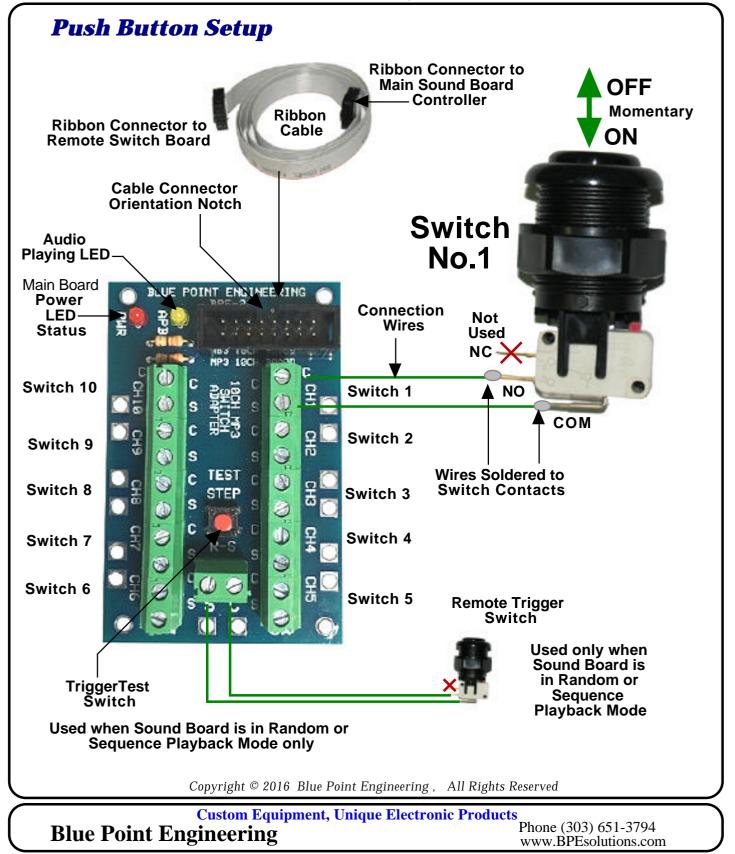


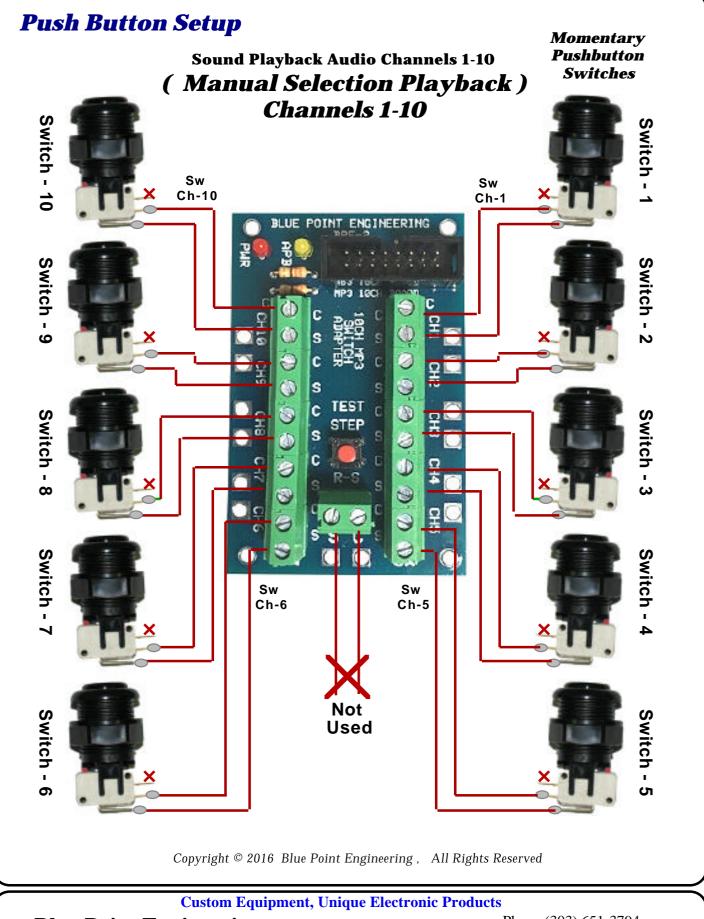


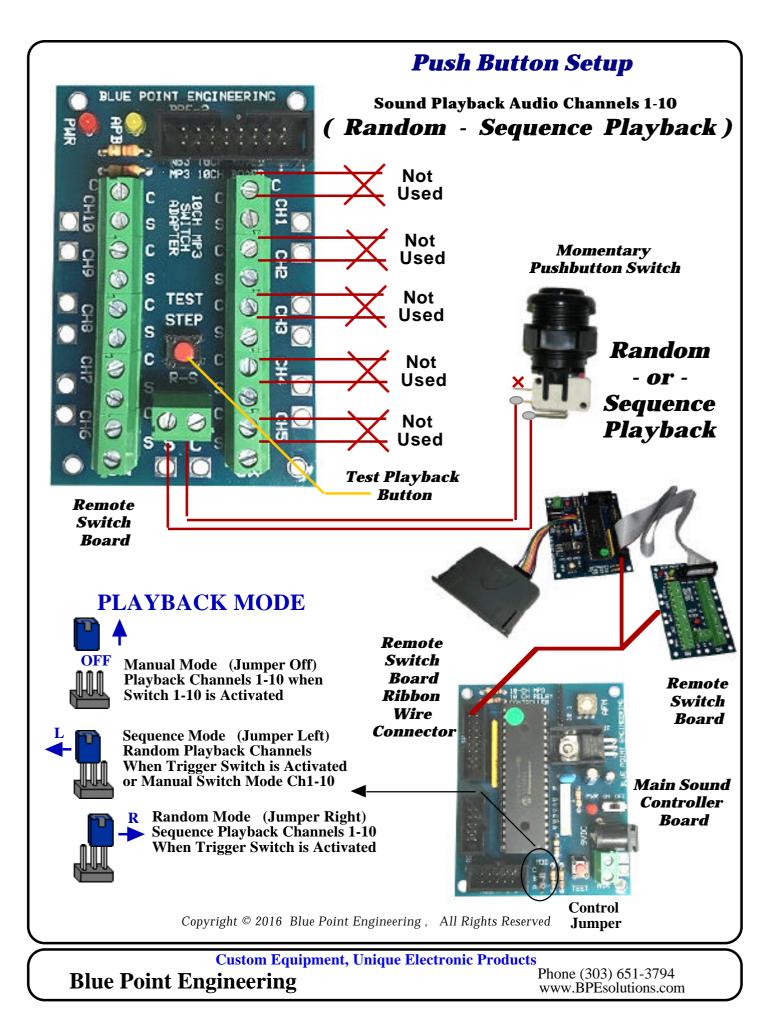


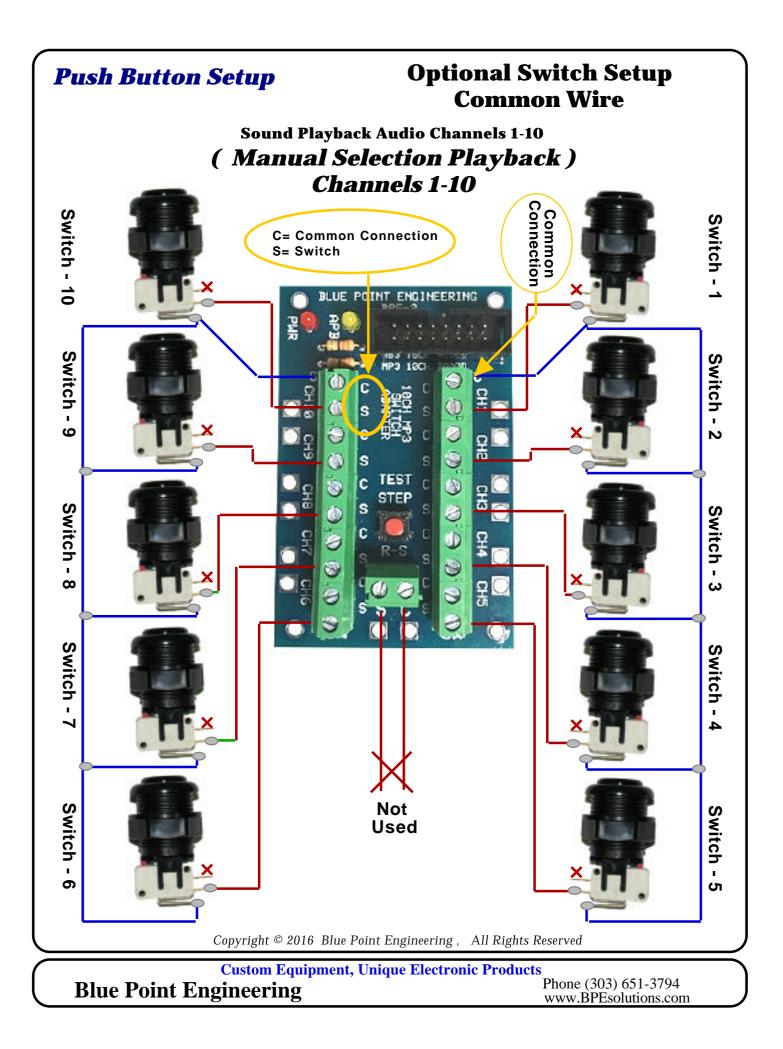


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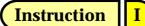






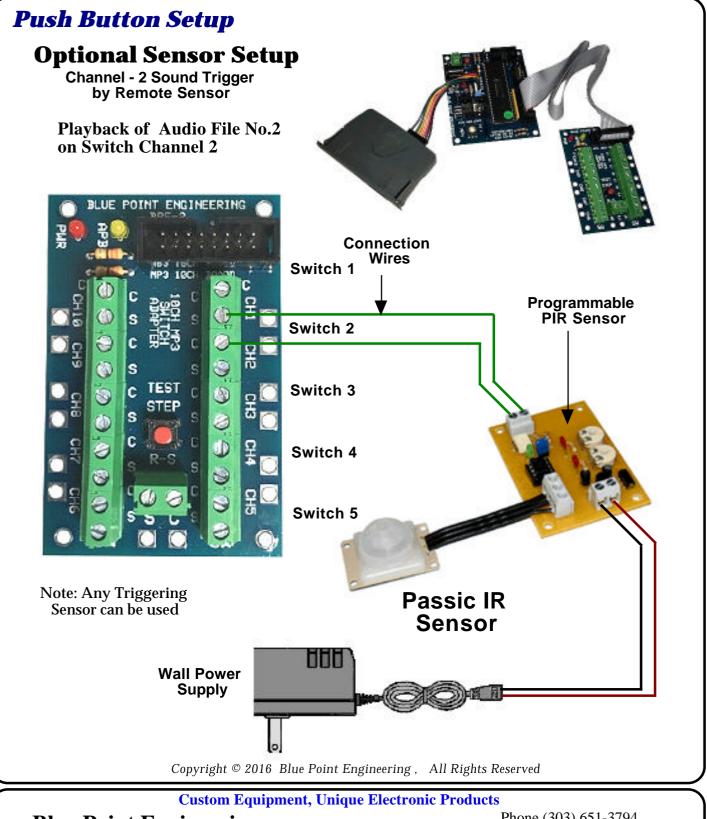




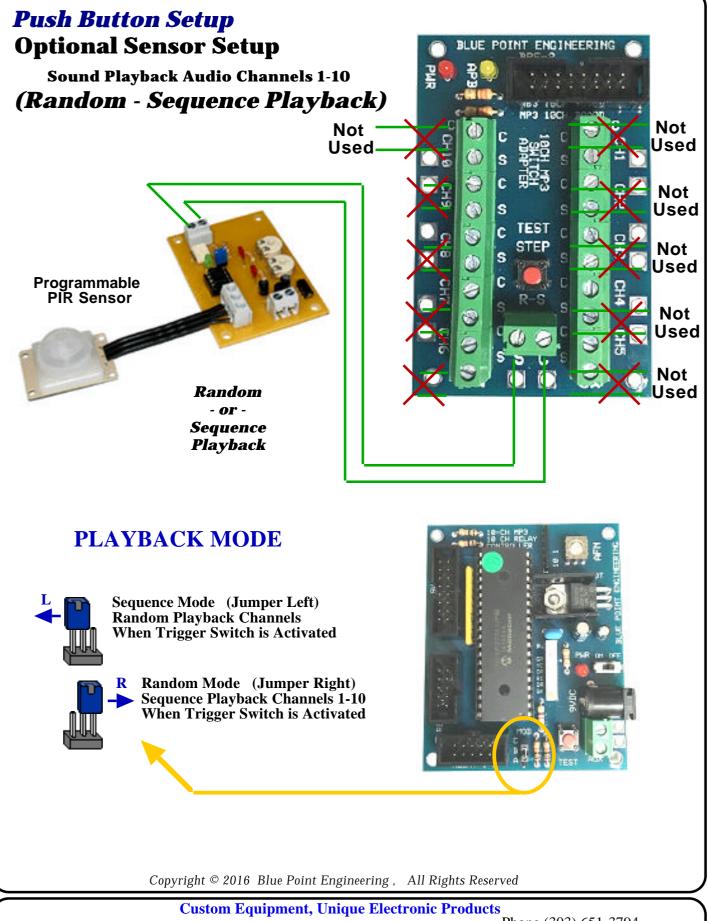


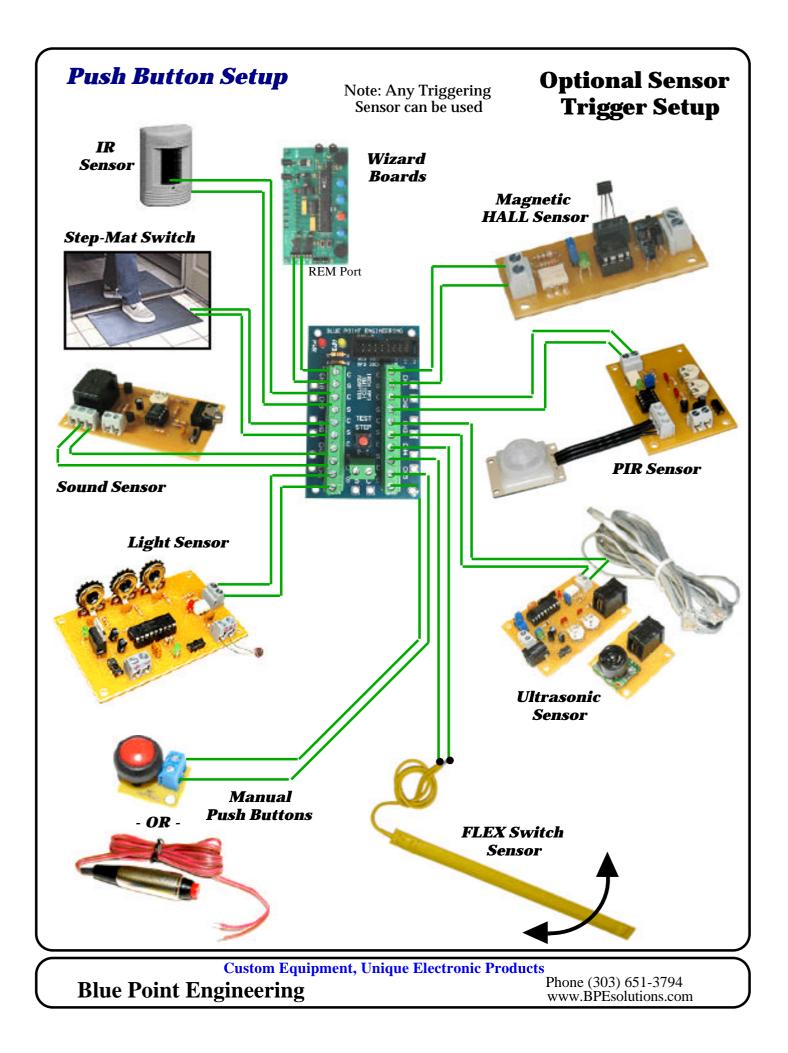
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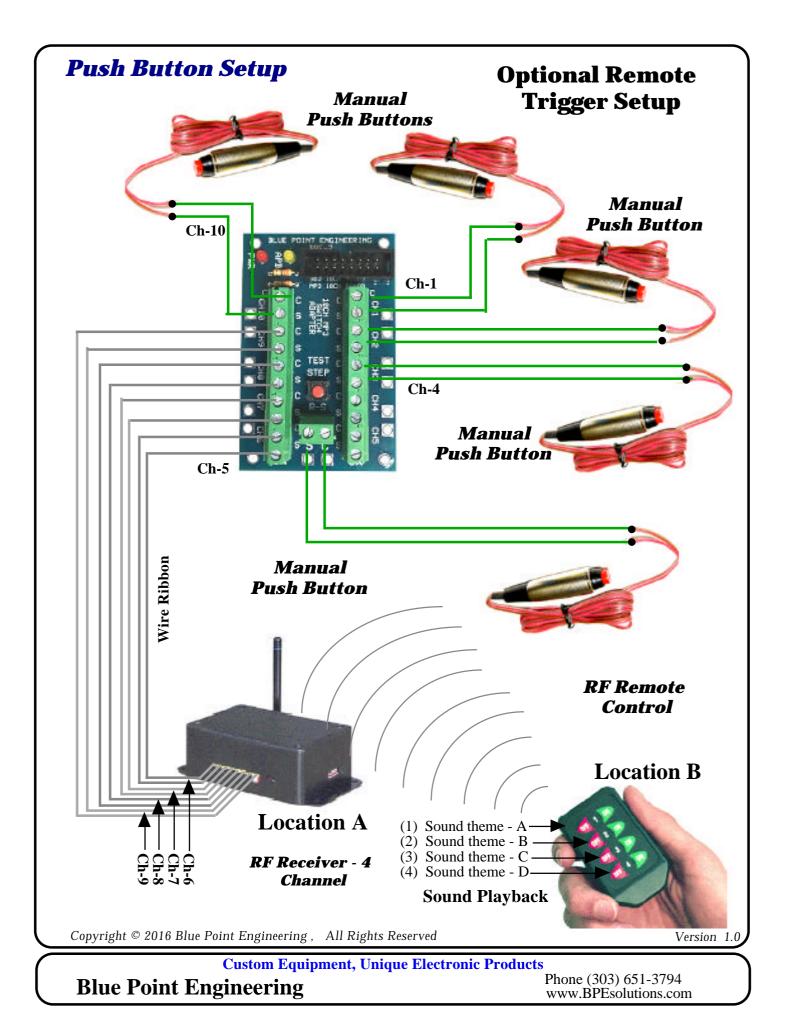
10-Ch MP3 Audio / Relay Controller



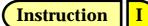
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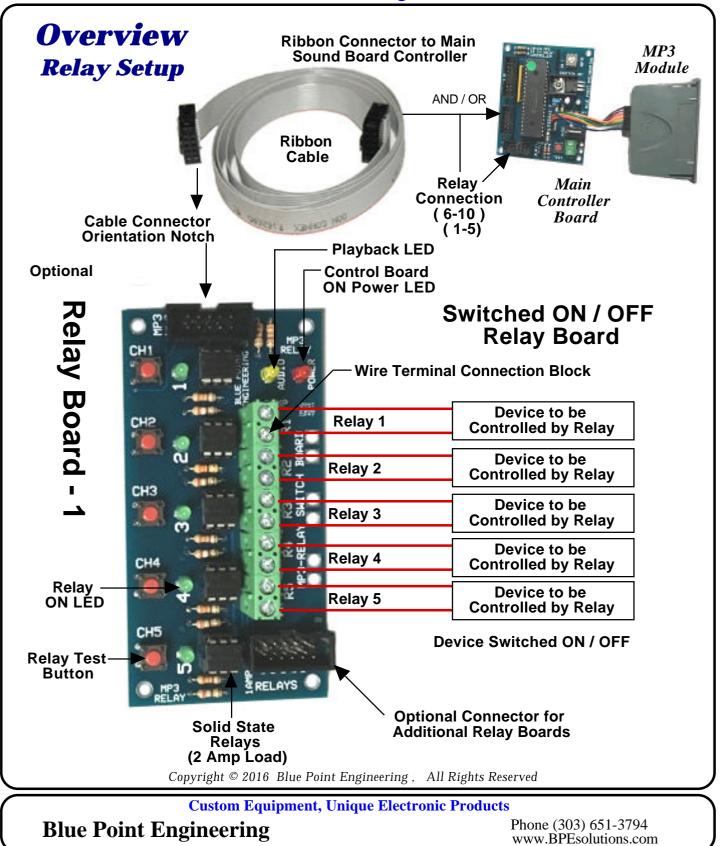


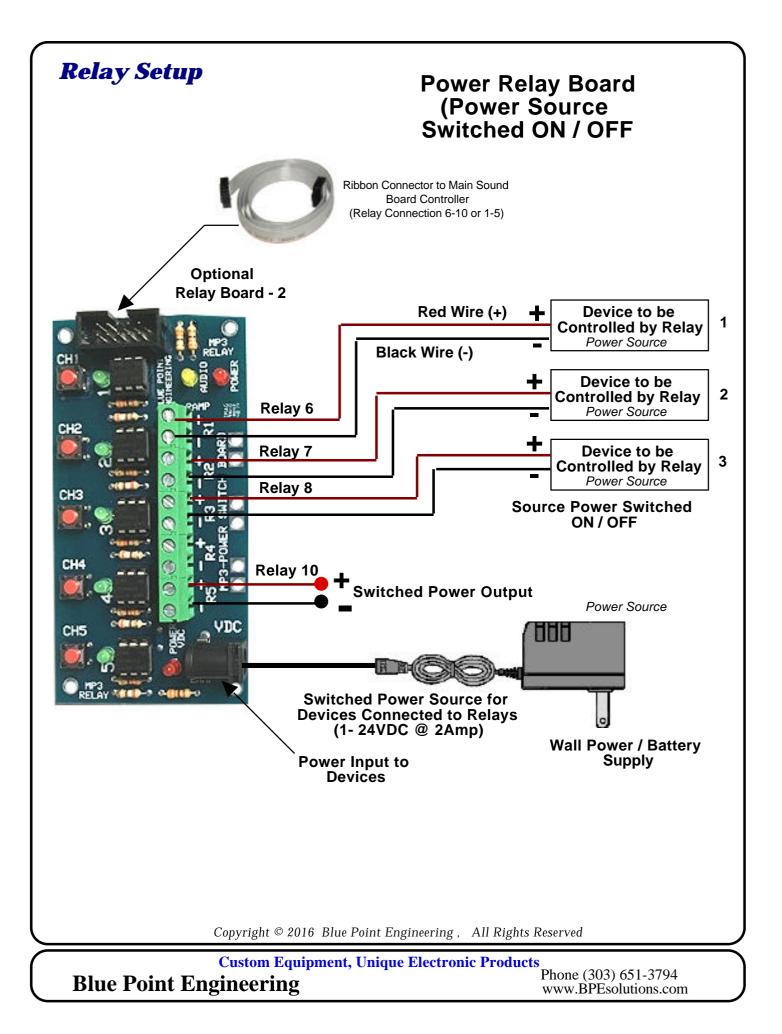


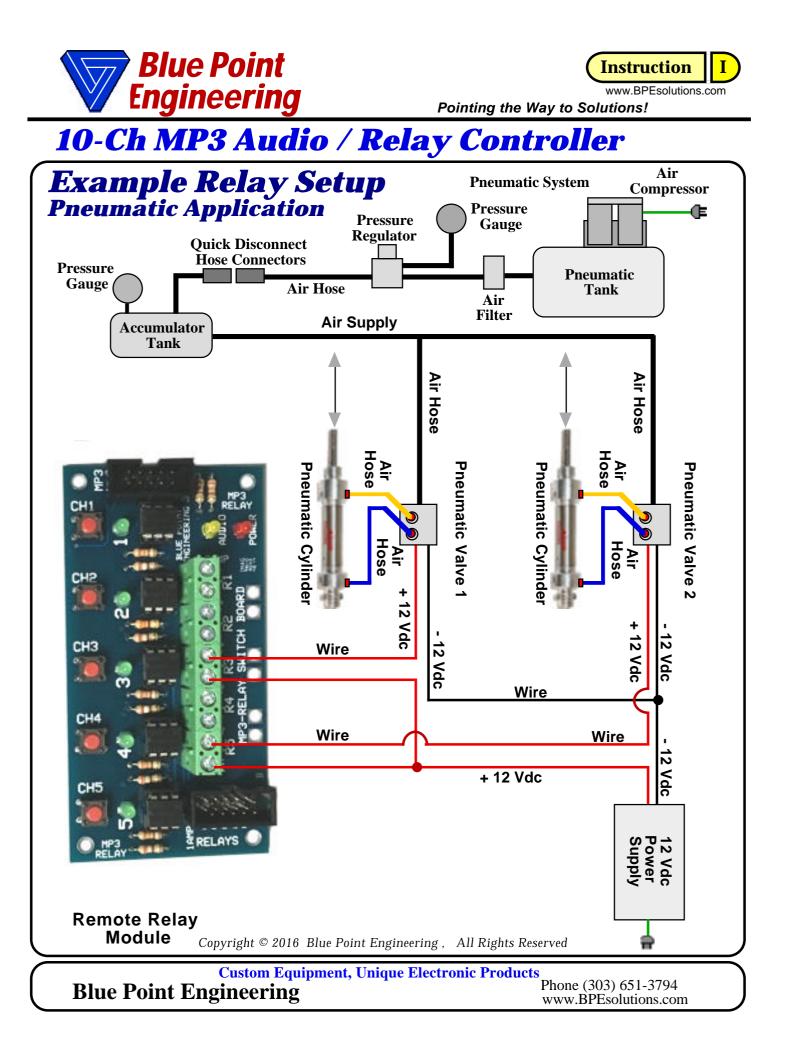


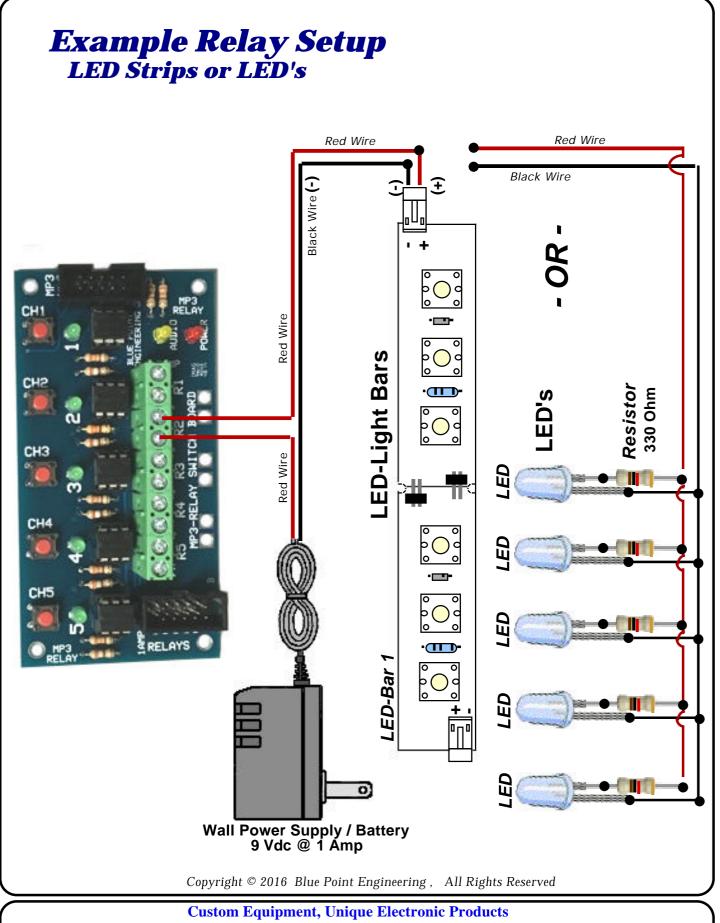


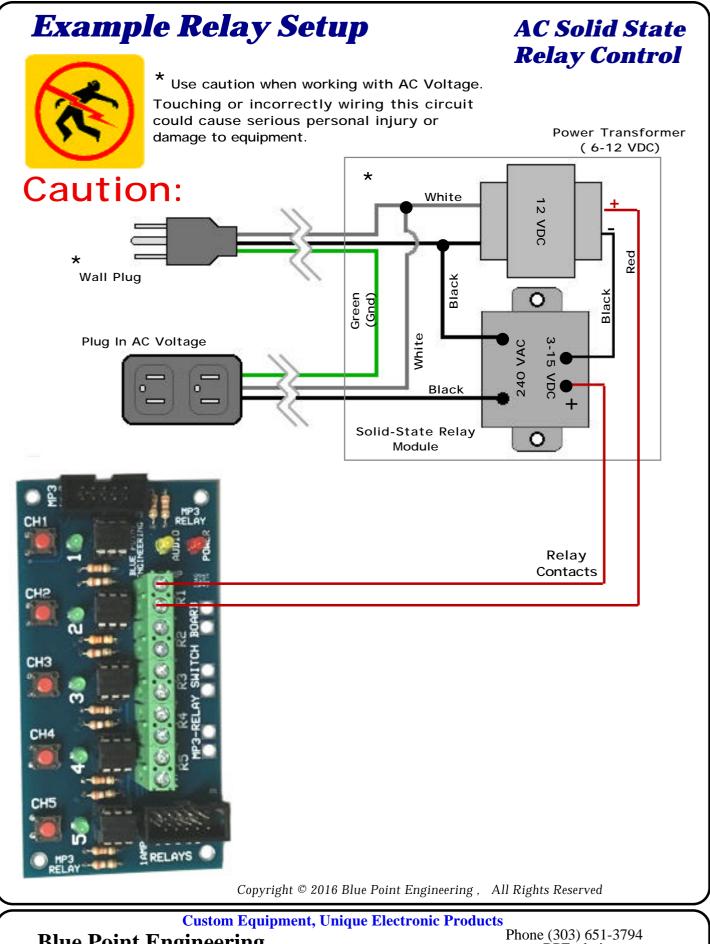
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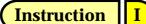




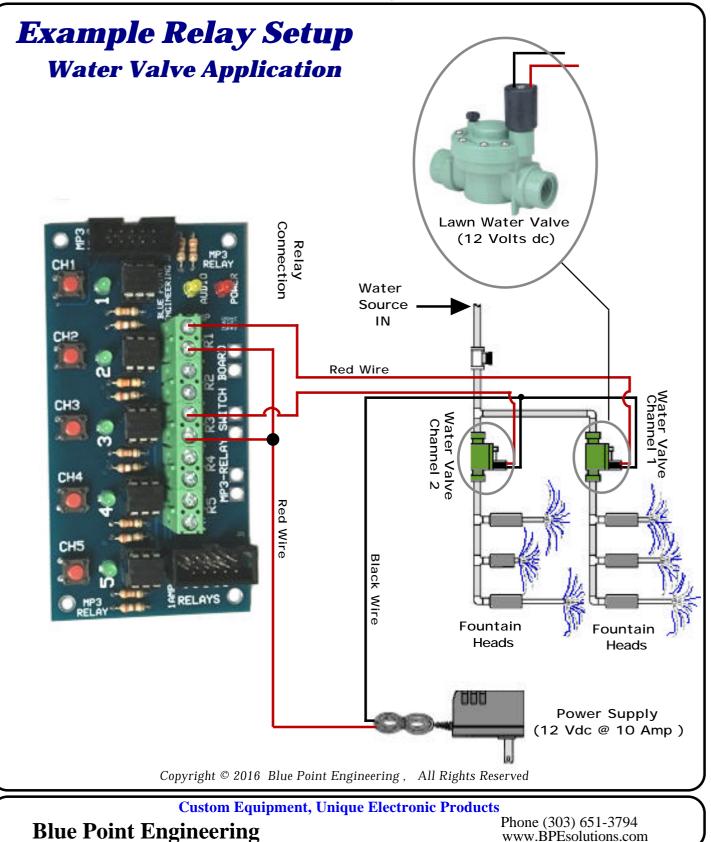


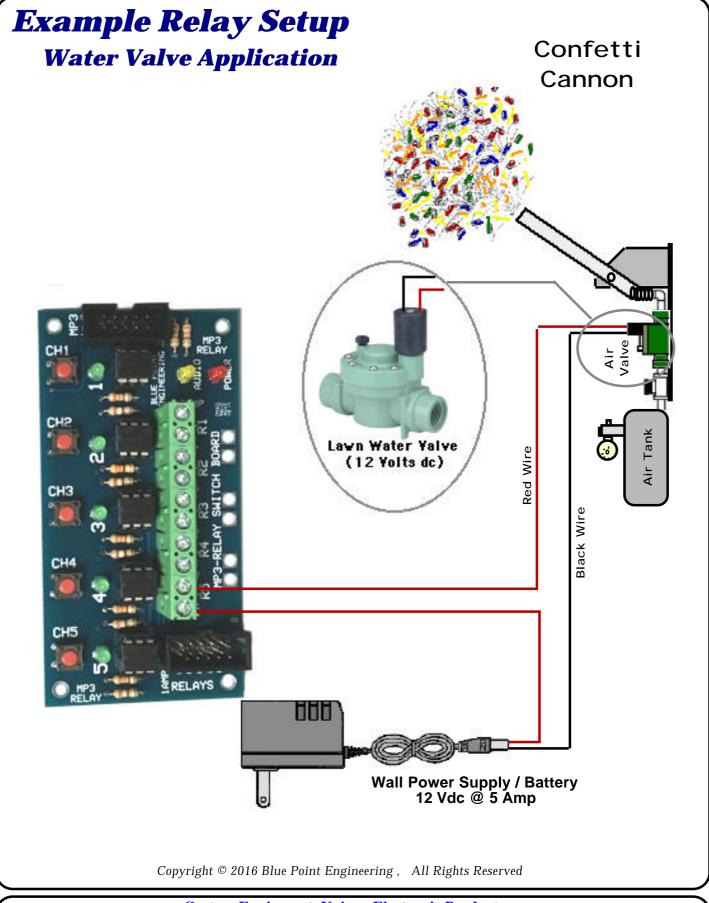
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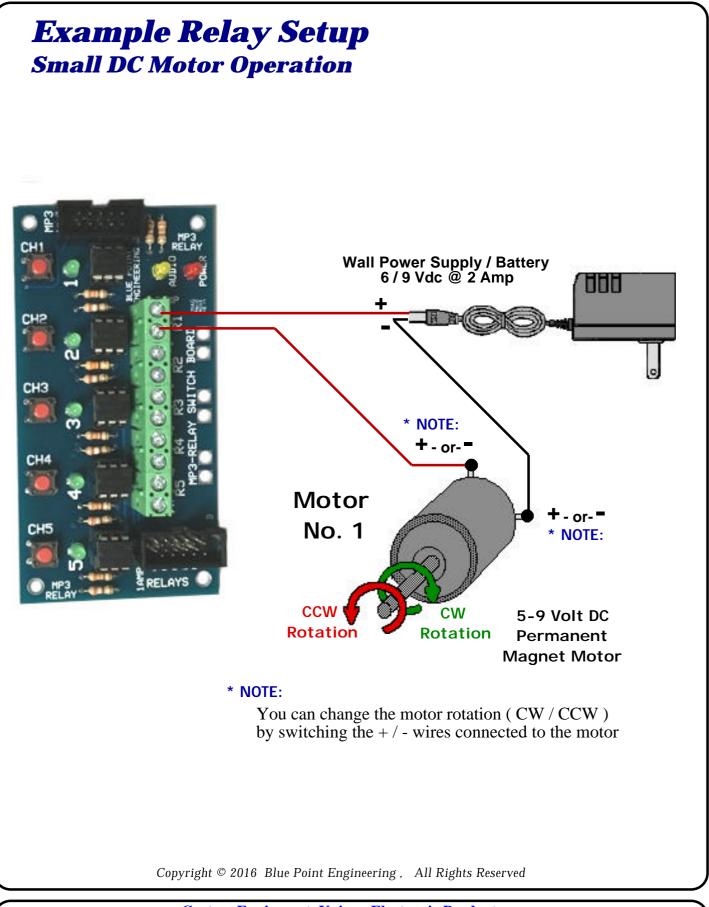
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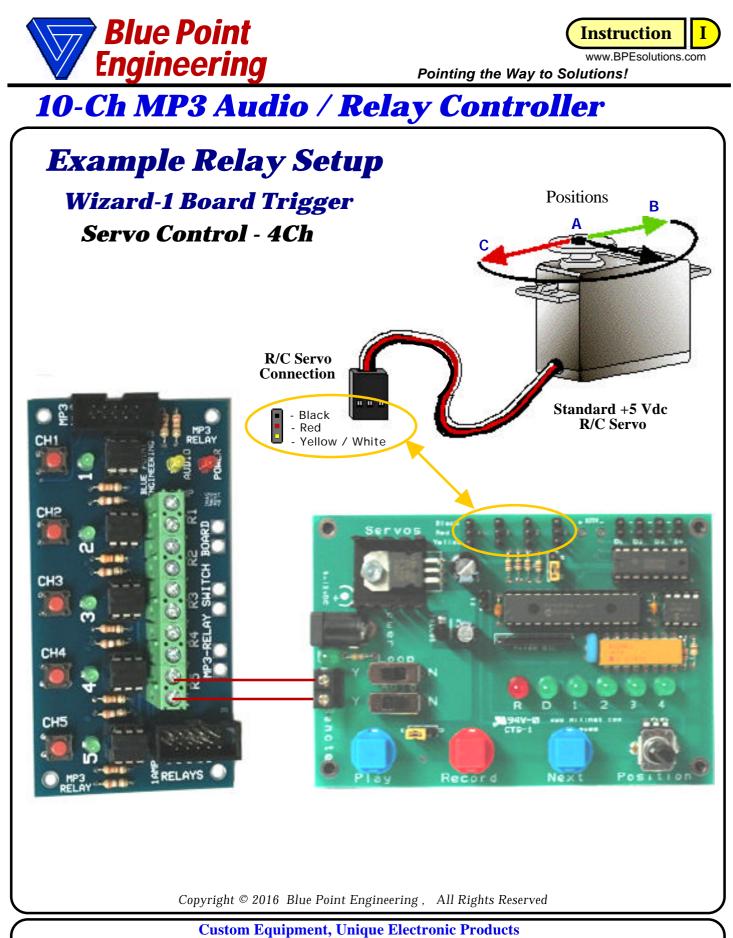
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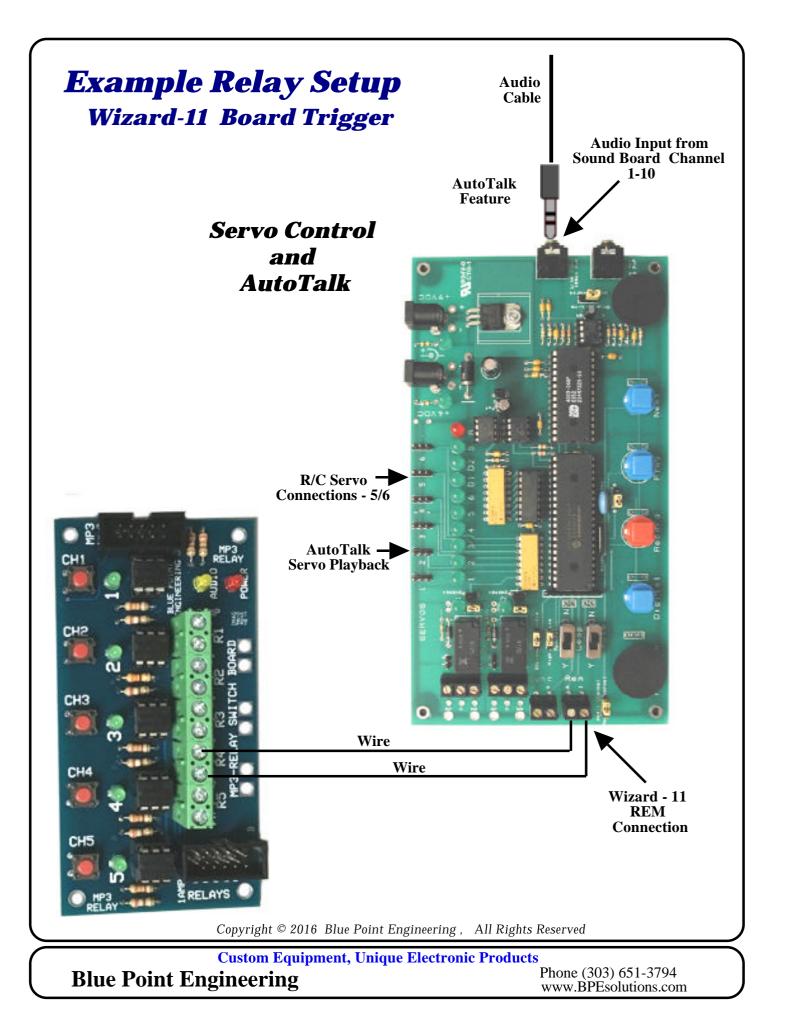
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NOTE: any number of file can be recorded from 1 to 10 audio files. The length of the recorded audio files available is determined by the size of the USB Flash Memory Drive.

Min number=1 file (file000.mp3) and the Max number=10 file (file009.mp3)

Audio File Size= As large as the USB Flash memory Drive capacity is.

(Yellow LEDs used to indicate Audio files loading, playback action occurring or audio file troubleshooting)

Troubleshooting / Hints Guide

- Q. I have recorded my sounds, but nothing plays back when I activate the trigger switch or test button.
- A. Check to see that you have named the audio files correctly. For example, if you only have 5-MP3 audio files on the drive, they would be named "file000.mp3" to "file004.mp3"
- A. Check to see if your Hide File Extension display is turned ON in your computer, if so, then the files probably have double extensions added, "file000.mp3.mp3. -" file009.mp3.mp3. The second extension is incorrect, should be file000.mp3" to "file009.mp3, Turn Hide OFF and rename the files.
- A. Check to see that the main board File Number Indicator switch is set to the correct number of files you have on the USB Flash Memory Drive: Remember you started at file000.mp3 so the File Number Indicator would be set to the **position 4** (0, 1, 2, 3, 4 = 5 files). Make sure Notch on Switch is correct position.
- A. Check to see that the audio files you are using are not a different format, The audio file must be MP3 type.
- A. Check to see that the audio files have been transferred onto the USB Flash Memory Drive.
- A. When you activate the remote switch, test button does the **Yellow** LED on the board go ON and then OFF. This would indicate that the audio file has been triggered for playback, but that the sound may not be getting to the remote connected Amplifier / Speaker module. Make sure that the power to the Amplifier / Speaker is ON and the volume turned up. Check the stereo audio cable connected between the MP3 sound playback board audio jack output and the Amplifier / Speaker Module audio input jack, making sure that it is plugged in and that the audio cable is good. If the Yellow LED does not turn ON when the remote switch or test button is activated, then there may be a problem with the USB Flash Memory Drive or the MP3 audio files, names or audio format-type is not MP3.
- A. Check the power supply and make sure that you are connected to the controller board and plugged into the wall outlet if using a wall adapter. Make sure that you have a regulated power supply (<u>9.0 VDC</u> power)
- A. Make sure that the board power switch is ON (You should see a Green LED light when there is power to the sound controller board)
- A. Check your USB Flash Memory Drive to see that it has been formatted as a blank drive, before adding you new sound files, Some USB Flash Memory Drives have a security or Auto Boot feature that prevents the MP3 player from using the sound files correctly even when formatted. Re-format your USB Flash Memory Drive removing any security or Auto Boot formats first. (Format USB Flash Drive as a MS-DOS FAT) Try a different USB Flash Memory Drive type, as some manufacture brands operate different than others. Use a ScanDisk Thumb Drive and format it first, before adding any files.
- Q. I would like all the audio files to play once, and then start over automatically.
- **A.** Connect a jumper wire across the remote terminal switch connector. The audio files will play as looping playback. The controller will wait until the sound file has finished playing before it will playback the next audio file.
- Q. I am using the optional Radio Shack Amp / Speaker module, but there is no sound from it.
- **Å.** Check to see that a 9v Battery has been installed, or if the battery is dead.

Q. Audio Playback board is Extreamly Hot and Stops working after a few minutes.

- A. Check the power supply, use a regulated power supply of 9.0 Vdc at 800 mA only.
- Q. I am using a Macintosh Computer with OS X and the USB Flash Drive needs to be Formated.
- A. See the handout on Formating a USB Flash Drive for MP3 files using the MS-DOS FAT format (Recommended 8GB SanDisk USB Flash Drive)

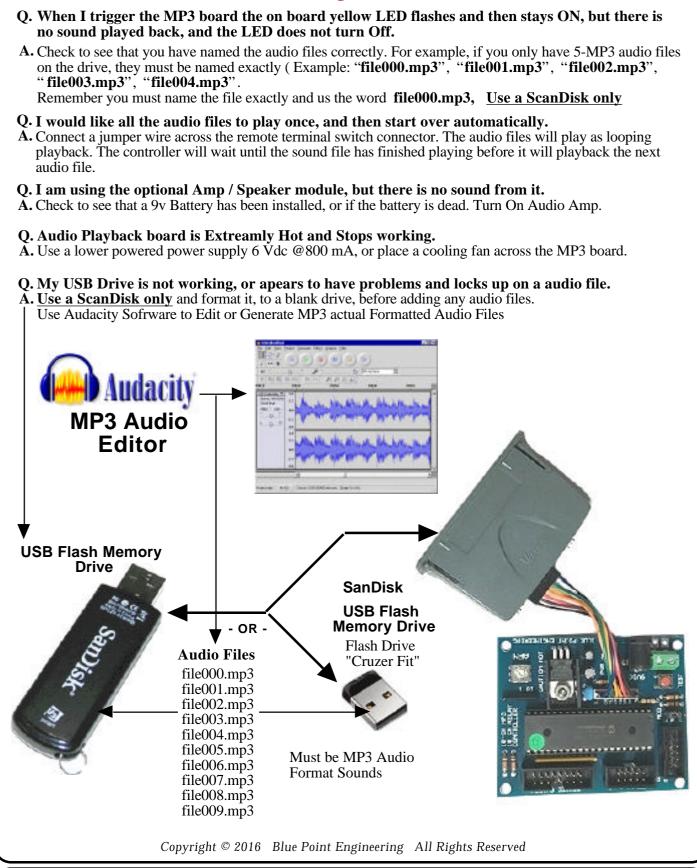
Q. I have tried everything but the MP3 player will not work correctly.

A. Check to see that the File Number Indicator Switch has been set to the correct number of files on the USB drive, Check to see that the Notch on the switch is toward the correct number. Check the USB drive for the MP3 file names, make sure that the correct file wording has been used. (See info in this document about these settings and name for files) Check to see that the MP3 file is a real MP3 format. Check the Mode switch to make sure it is in the correct jumper configuration for what you want the board to do. Re-Read the instruction manual, pay attention to the settings, and check the Sound board over for correct configuration.

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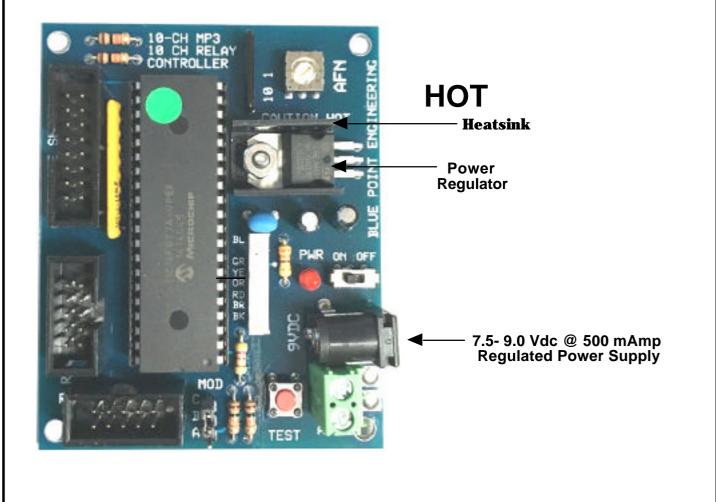
Troubleshooting / Hints Guide



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Troubleshooting / CAUTION

The MP3 Power Regulator will be Warm to Hot with normal operations. If you find that the Regulator is hotter then normal, the Audio Playback PC Board is Extremely Hot or the MP3 player module Stops working then use a lower powered power supply regulated to 9 VDC at 500 mA or a regulated 7.5 Vdc at 500 mA, regulated power supply. You might also try using a different USB drive module as some drives pull more power and get hot. If the controller is still warm after power changes, you may need to place a cooling fan across the MP3 board, or/and stand up the Voltage Regulator and heat sink from off the board.



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