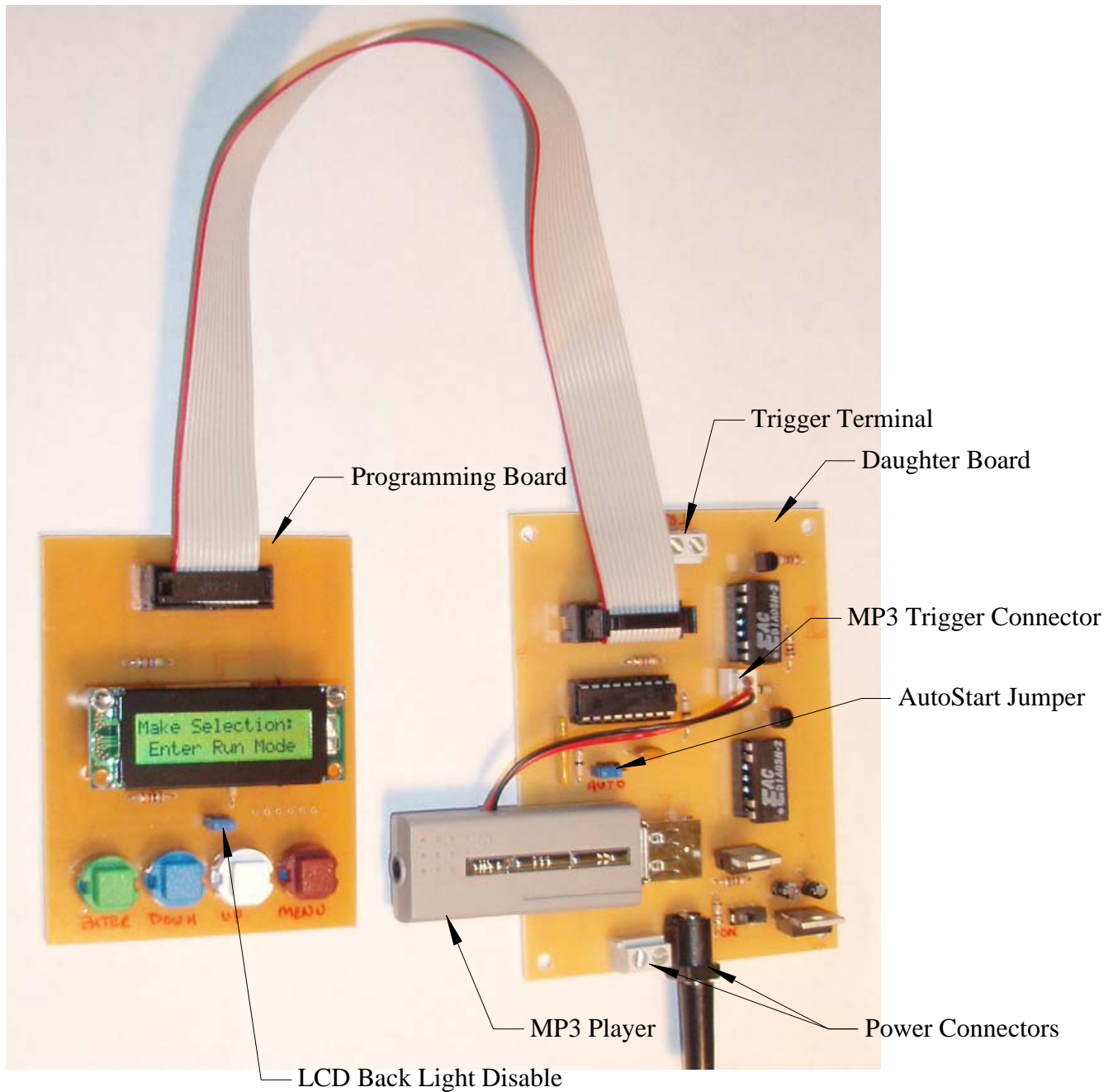


# EVILUSIONS



## Description:

The MP3 Controller was designed to control the playback of an audio file that is stored on a 16 Mb MP3 player (supplied). Up to 15 minutes of high quality, stereo audio can be stored on this player. The user enters the length of the audio and the length of a Loop Period (optional) via menu-driven LCD input. Times are stored in non-volatile memory. The MP3 Controller consists of 2 boards – A Programmer Board (PB) and a Daughter Board (DB). The PB is attached to the DB via a 12” removable ribbon cable and has 4 programming buttons and a back-lit LCD display. It is used to enter the time settings and a

Loop option, if desired. The DB, once programmed, can operate without the PB attached. When the Controller is triggered, the MP3 player is started. When the playback is finished, the board waits for the next trigger event or, if a Loop Period was programmed, will go into a wait period (programmed) and then automatically replay. If the PB is attached during playback, the LCD will display what time period it is in and count down the remaining time for that period. The PB measures 2.6" x 3.25". The DB measures 3.1" x 4.0". The controller requires a 7.5 to 24V power supply. Power can be supplied via a 2.1 mm x 5.5 mm, center positive power jack or via a 2 position terminal block which allows using a battery for power. The user has the option of enabling or disabling the LCD backlight in order to save power. The player will connect to powered speakers via a standard 1/8" stereo audio jack. When using the DB without the PB attached, there is a jumper on the DB that will immediately place the board in Run Mode, awaiting a trigger event as soon as power is applied.

### **Programming:**

To program the controller, attach the PB to the DB with the supplied ribbon cable and remove the jumper next to the MP3 player on the DB. When the power is turned on to the board, a couple of messages are displayed showing how to use the buttons to make entries and will then ask the user to select between 2 modes – Run Mode or Time Entry. Use the Up or Down buttons to toggle between the 2 selections and then press the Enter button.

### **Run Mode:**

If the user selects Run Mode, the board will go to waiting for a trigger event to start the playback. The MP3 player should be plugged in to the DB and the Trigger Wire coming from the player should be plugged into the Trigger Connector. Playback can either be started by pressing the Enter button on the PB or by a dry contact switch closure at the Trigger terminal block on the DB. This allows the use of a remote triggering device to start the playback.

### **Time Entry:**

To set times, the user will use the Up and Down buttons to set the time and then press Enter to save it. The maximum time that can be entered for any period is 15 minutes. Pressing and releasing the Up/Down buttons will increase/ decrease the time one second at a time, Holding down the Up or Down buttons will change the time 10 seconds at a time.

There are 2 times that the user needs to enter – Play Time and Loop Time. The first time entry is Play Time. This is the time, in minutes and seconds that represents the length of the audio file being played back. You can get this time by opening the audio file on your computer with a program like Windows Media Player or WinAmp. The time entered for this interval must be very close to the length of the audio because the MP3 player will automatically start to replay the audio if the Play Time is longer than the audio. It is a wise practice to add a couple of seconds of silence to the end of the audio to allow for this. The second time interval is the Loop Time. This is an optional entry. If the Loop time is set for 0 seconds, the audio, when triggered, will only play one time and then wait for another trigger. If the Loop time is set for 1 second or more, this will cause the audio to be replayed over and over with a delay of whatever was entered for the Loop Time between replays. This will continue until the user presses the Menu button (if the PB is still attached) or resetting power to the DB. During each of the 3 time intervals, the display (if the PB is attached) will show what time interval it is in and count down the remaining time for that interval. At any time during any of the time intervals, the user can abort the timing by pressing the Menu button. The display will show "Aborted!" and then will go back to waiting for a trigger event.

### **AutoStart Mode:**

As mentioned above, after programming, the DB can be used without the PB attached. To do this, turn the power off and remove the ribbon cable from the DB. Place the jumper on the pins next to the MP3

player and turn the power back on. The board is now waiting for a trigger event. Once triggered, a red LED on the MP3 player will flash while the audio is being played. If you reattach the PB, turn on the power and see the message “Deploy Mode” and “Remove Jumper” on the LCD display, you will need to remove the jumper next to the MP3 player and “reboot” the controller. This will return you to Program Mode.

### **PIR Trigger (Optional):**

A PIR module can be attached to the board to trigger it. You will need to solder the 3-wire connection to the board. This is done right above the Trigger Terminal Block. Right next to the ribbon cable connector on the DB, there is a jumper. This will need to be in place for the PIR to work. If it is removed, the PIR will be disabled but the board can still be triggered normally. On the circuit side of the board you will see an “S” next to one of the PIR solder pads and a “(-)” next to another one. The “S” pad gets the signal wire, the “(-)” gets the ground wire and the middle pad gets the (+) wire. Remember PIRs require a warm-up period when they are first powered up.

### **MP3 Player:**

The MP3 Player provided with this board is a 16 Mb USB flash drive with built-in electronics to play back files stored in MP3 format. It has been modified to allow remote triggering by the board. To store your audio on the player, just plug it in a USB port on your computer and drag/drop or copy/paste the MP3 file you want onto the player. Then just plug it into the controller board’s USB port, plug in the trigger wire and enter the times as described above and you’re ready to go!

### **Power Specifications:**

Following is a table showing the power requirements of the controller in different configurations:

| <b>Configuration</b>               | <b>Mode</b> | <b>Current</b> |
|------------------------------------|-------------|----------------|
| PB attached to DB w/back-lit LCD   | Rest        | 33 mA          |
| PB attached to DB w/back-lit LCD   | Playback    | 112 mA         |
| PB attached to DB w/o back-lit LCD | Rest        | 11 mA          |
| PB attached to DB w/o back-lit LCD | Playback    | 90 mA          |
| DB only                            | Rest        | 11 mA          |
| DB only                            | Playback    | 90 mA          |

### **Disclaimer:**

In no circumstances should these circuit boards be used in critical situations where failure could mean injury, death or property damage.

Please check out our other circuit board designs at [www.evilsions.com](http://www.evilsions.com)

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