



Model Train™
TECHNOLOGY

Bell Module™

OPERATIONS MANUAL

Version 2.0a

With 2 Gigabyte TF Card



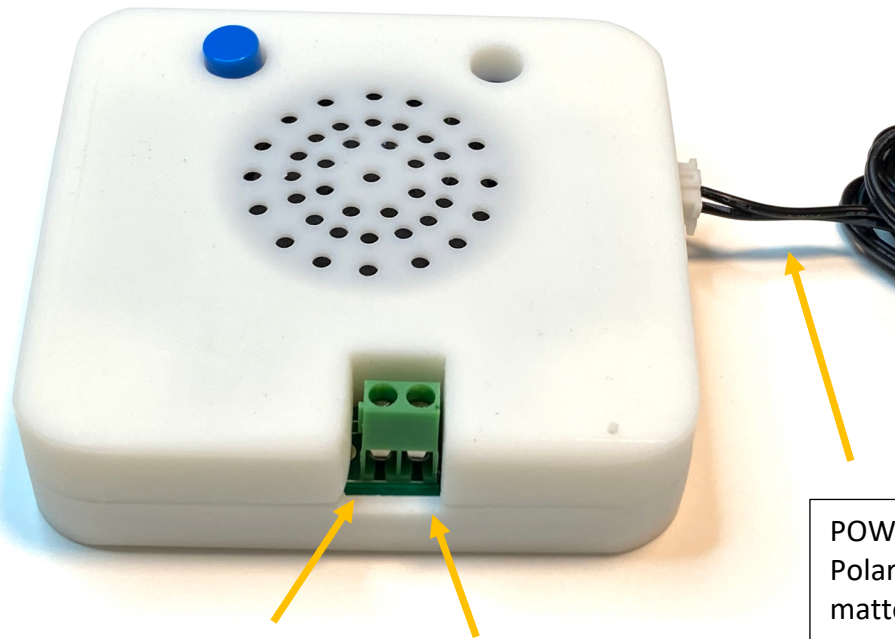
INTRODUCTION

The Model Train Technology™ **BELL Module™** provides an extremely simple, yet versatile, plug-and-play system for adding sound animation to your layout.

The main features are:

- Record and load your own sounds (MP3 files)
- Four pre-recorded Bell soundtracks
- 2GB sound storage (about 18 hours!) *
- One trigger – by sensor or push button.
- Play once or repeat a sound track
- Built in speaker with sound baffle
- DC voltage 12VDC

*The typical encoding standard for MP3 files is 128 kilobits per second. This works out to about **1 megabyte (MB) per minute of sound.**



Trigger/Sensor In

Connect a YELLOW
signal wire from a
Precision Sensor

Common

POWER CORD-
Polarity does not
matter.

USE ONLY 12 VDC

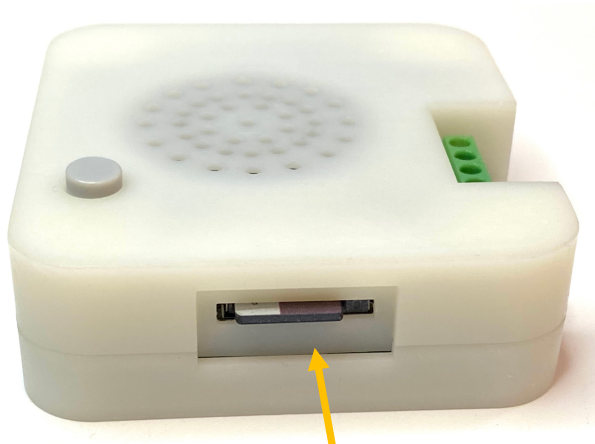
To test the bell module, connect a short wire between Common and Trigger.



Volume Control –
insert screwdriver and
GENTLY turn.

Activity blue LED

Select Button



2 GB TF Card

OVERVIEW

The MTT BELL Module provides an easy approach to adding Bell sounds (or any sound) to your layout.

THEORY OF OPERATION

There are four Bell sounds pre-loaded into the Bell Module.

The BELL Module has a single MP3 file player and therefore, can only play one sound at a time. When a sound is playing the blue LED will light and it will shut off when a sound is finished.

- A sound can Play once and stop, or play continuously while the trigger is ON.

Press the blue SELECT button 5 times to change the player to Play Once mode.

Press the blue SELECT button 6 times to deactivate Play Once and return to continuous play (while triggered).

- Once a soundtrack set to Play-Once has started, it will play to the end even if you release the trigger.

To select which bell sound will play when the device is triggered, press the SELECT button either 1, 2, 3 or 4 times. The blue LED will flash indicating the sound track is selected.

You can save the volume setting of the Bell Module by adjusting the sound using the trim potentiometer (with the provided screwdriver).

Do Not Connect Arduino GPIO pins directly to the BELL Module triggers.

The MTT BELL Module triggers are Open Drain to Ground style. The GPIO HIGH of an Arduino signal is 5V and may damage the trigger circuit.

LOADING SOUNDS TO YOUR SOUND MODULE

The TF Card is a 2GB (gigabyte) storage card for the four soundtracks. The sounds are contained in a folder named “01”. DO NOT CHANGE THIS FOLDER NAME. Inside that folder each sound is prefaced with the track number like this:

001Bell.mp3

002Bell.mp3

003Bell.mp3

004SteamBell.mp3

When you plug the TF card into a TF Card read (connected to your computer via USB) the folder will pop up on your desktop. (there are slight differences as to what this will look like on a MAC versus a PC)

You may change the name of the soundtracks EXCEPT you must retain the “001”, “002” preface for each of the files. So you could call track 1 = “001mybellsound”.

Keep the names relative short and do not use special characters in the name.

If you like, you can use a TF card with up to 32GB however you still only have four sound tracks.

To move sounds to the Sound Module simply drag and drop those files from their source location on your PC into the folder.

SOUND FILES MUST BE .mp3 FILES

To remove a sound, we suggest you move it to your desktop via drag and drop. This copies the file to the desktop but does not remove it from the folder. Once you have that copy, then delete the file in the folder.

Some other guidelines:

1. Only four files will play, and they will be the first four files you load into the folder. A fifth file will be ignored.
2. If you try to move a file that is too big for the folder your operating system (Windows) will let you know and complain. We don't control that.
3. The files must be .MP3 files and we recommend that they be recorded at 128kbt. There are many programs available for free on the internet to do this. Many do not require you to install any software. Instead, they work from within your browser

BEWARE OF DOWLOADING PROGRAMS FROM THE INTERNET.

HOW TO CREATE .MP3 FILES

We will not be able to explain all the details but rather, we can give you some general ideas about how to record sound files and get them into MP3 format. There are also web sites that let you subscribe to their library of sounds, and some are free.

We will be building a library of sounds along with further instructions and videos. If you get stuck, start with the videos to see if you can solve the problem.

Using your Phone:

All smart phones have an audio recording app. These will usually create an .M4a file which is an Audio only

version of MPEG-4. These will usually have higher quality than an equivalent MP3 file – and therefore the files are larger. The first portable song players were based on MP3 and our sound card is an MP3 player so we need to convert the file. It's fairly simple as things go on the PC. The hardest part is getting the audio file from your smart phone to the desktop.

Once you record a sound on your phone you will want to move that file onto your desktop. You can email it to yourself or text it to your email.

You can also email the non-MP3 source sound file to Support@ModelTrainTechnology.com and we will convert it for you. The file must be less than 4mb.

We will also be happy to convert and preinstall any soundtrack files that you might have.

Put “MP3” in the subject line.

Another step you can take is to edit the file. I do this to clip the dead space at the beginning and end of my original recording.

There are also both browser-based and installable Apps for Windows that can help you with this. We will also be developing some How-To videos for this.

ELECTRONICS AND STATIC ELECTRICITY

The ***MTT BELL Module™*** circuit board and components are exposed when the cover is off. Electricity can be dangerous. Static electricity can cause component failure. Scuffing along a carpet and then touching one of the component connectors can cause a static spark. These components are rugged – some designed for the automotive industry. Just be mindful of the risk. The current on the board will not harm you if the board is powered and operated as per the instructions.

ONE YEAR MANUFACTURER WARRANTY

We warrant this **product** to be free from defects in workmanship and materials, under normal residential use and conditions, for a period of one (1) year for the

original invoice date. Shipping and handling fees are to be paid for by the customer.

LIMITATION OF LIABILITY

UNDER NO CIRCUMSTANCE SHALL COMPANY OR ITS AFFILIATES, PARTNERS, SUPPLIERS OR LICENSORS BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL OR EXEMPLARY DAMAGES ARISING OUT OF OR IN CONNECTION WITH YOUR USE, OR INABILITY TO USE THE PRODUCT, WHETHER OR NOT THE DAMAGES WERE FORESEEABLE AND WHETHER OR NOT COMPANY WAS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, COMPANY'S AGGREGATE LIABILITY TO YOU SHALL NOT EXCEED THE AMOUNT OF THE PRODUCT. THE FOREGOING LIMITATION WILL APPLY EVEN IF THE ABOVE STATED REMEDY FAILS OF ITS ESSENTIAL PURPOSE.



Model Train Technology LLC

10524 Moss park Rd. Ste. 204-256

Orlando, Florida 32832

407-242-5436

www.ModelTrainTechnology.com

support@modeltraintechology.com

Version 2.0a

Copyright© 2024 Model Train Technology LLC