

Sounds for Model Railroads



Rick Hills

Goals for Today

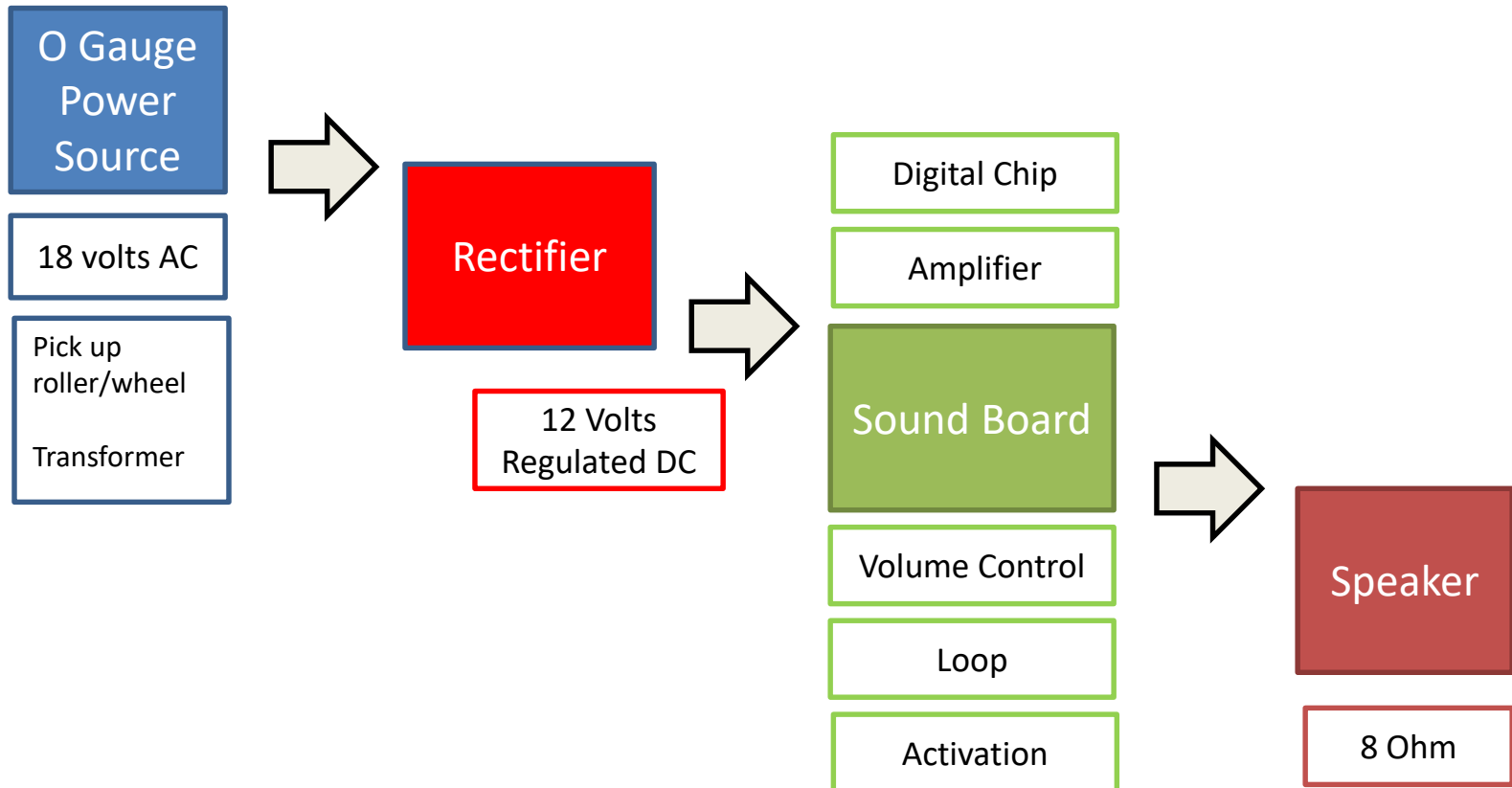
- Why add sounds to your layout?
- Discuss some uses of sound in O Gauge railroading
 - The Basics
 - Manufacturer “off the shelf” products
- Custom Sound Modeling
 - Police siren
 - Fire siren
 - A&W
 - Caboose Gambling
 - Barn
- Lessons Learned
- Appendix

Why add Sounds to your Layout?

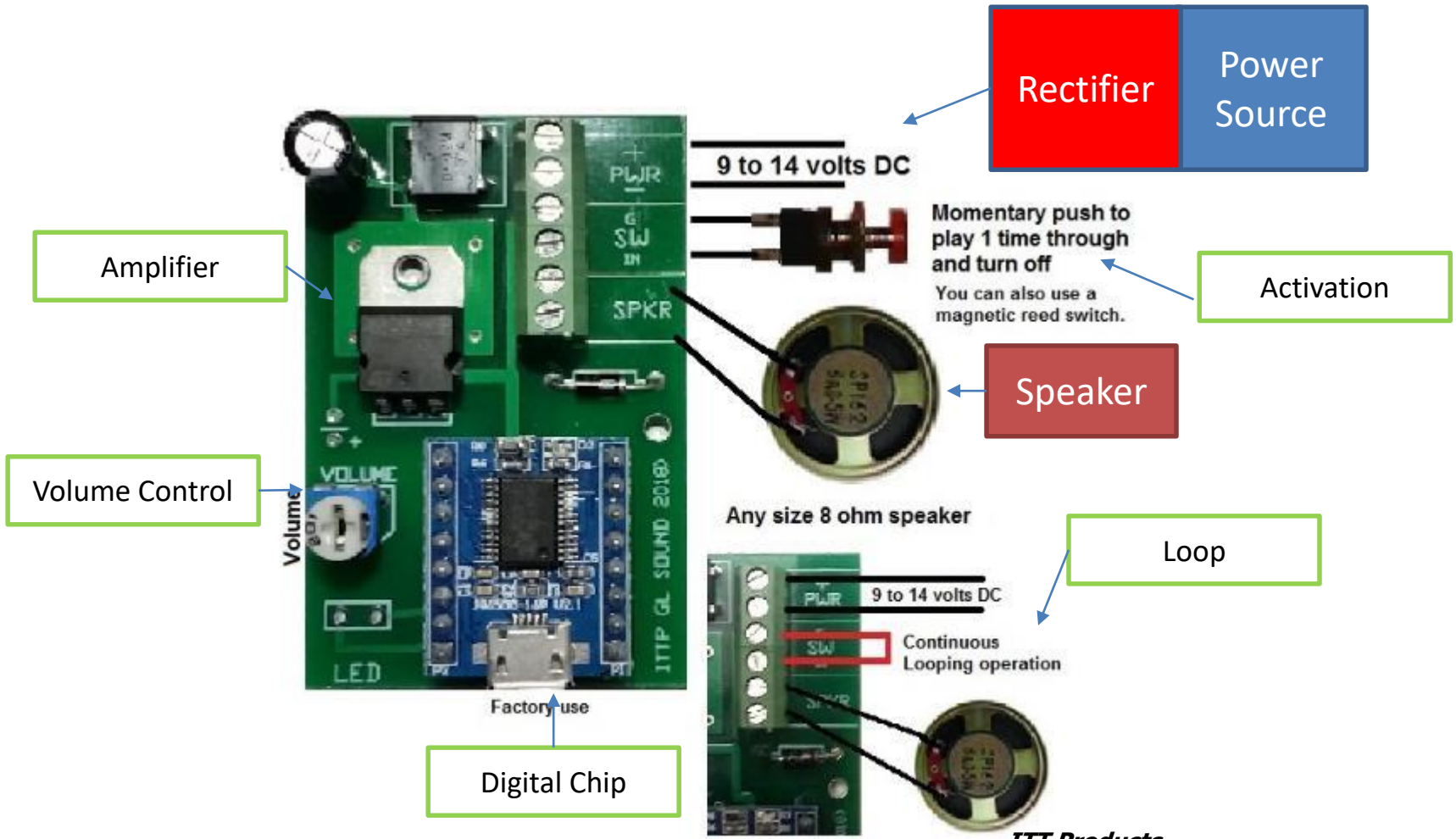
- Realism
- Additional dimension
- Humor
- Excitement
- Challenge
- Watch out...can mirror the real world

Sound Basics

Typical Sound Architecture



Actual Implementation



ITT Products
Innovative Train Technology Products
P.O. Box 5042 West Hills, CA 91308
818-926-1143
Email: george@ittproducts.com

What is Available? Off the Shelf

Off the Shelf Sound Opportunities

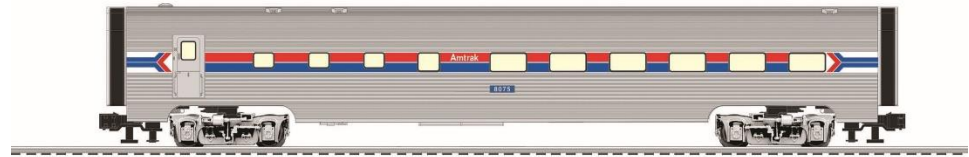
Sound Cars

- The PS1 Box Car



- Realistic Wheel flange squeal
- Sound that replicates train sounds play **when car is in motion**
 - **Rail clatter**
 - **Coupler slack bumping**
- Each car includes a **BABY FATBOY SPEAKER & sound enclosure** for optimum sound performance
- Operates on any conventional or command control layout
- Volume control and on/off switch
- Maximum / Minimum switch
- Lionel 6-83532
- <https://youtu.be/-RqpbJ-PTTA>

- The Station Sounds 21" Diner



- Accessible with LEGACY™, TrainMaster Command Control system or a conventional transformer
- **Custom recordings featuring multiple characters allow you to recreate an entire rail journey** – from departure to arrival at your final destination
- **Arrival/departure announcements, dining reservation calls, and other in – route dialog**
- "Clickety-clack" of the cars as they roll down the rails
- Lionel 6-82889
- <https://youtu.be/rN5wUoOCDdE>

Off the Shelf Sound Opportunities

Sound Cars cont'd

- Other sound car opportunities
 - Vision Ethanol Cars with Freight Sounds 6-27410
 - Reefer Freight Sounds Cars 6-83545, 6-83549
 - Vision Cattle Car with Cattle Sounds 6-29893
 - Hot Box Reefer with Sounds, Fire, Smoke 6-29831
 - Poultry Car 6-36861
 - Various multi vendor Christmas cars, Crane Sounds Cars, etc.

Off the Shelf Sound Opportunities

Buildings

- The Log Cabin House



- **As a makeshift headquarters for the logging team** at work near the rails, this structure is always busy with the sounds and excitement of all the logging action. Equipped with a sound speaker, the loggers cabin captures the dramatic **sounds of heavy equipment and loggers in action** and they cut and load the fallen timber in preparation for the train.
- Lionel 6-82873
- https://youtu.be/eUpTSy_3kfA

- Work Houses: Early Intermodal and MOW



- These sturdy little work buildings includes realistic sounds **of equipment and workers busy on the job (early Intermodal or MOW Work Structure)**.
- **Includes sounds of workers and equipment related to intermodal loading/unloading operations or MOW Activities**
- Lionel 6-82874 OR 6-83172
- [HTTPS://YOUTU.BE/JS4U34J2OW0](https://youtu.be/JS4U34J2OW0)

Off the Shelf Sound Opportunities

Buildings Cont'd

- O Scale Water Tower
 - Hand Painted
 - Available Weathered & Un-weathered
 - Available Decorated & Un-decorated
 - Sound-Synchronized Vertical Fill Spout Movement
 - Sound Equipped including sound effects for:
 - Spout movement squeak
 - Water hatch squeal & clang
 - Water filling
 - Talking Engineer
 - Push button activated (included)
 - Broadway Limited Dealer
 - https://youtu.be/oYxQob_1dOY



Off the Shelf Sound Opportunities

Buildings and Accessories Cont'd

- Other building and accessories opportunities
 - MTH Gas Stations with Sounds 30-9101
 - Lionel Passenger Station with Sounds 6-37928
 - Lionel Command Sawmill with Sounds 6-82023
 - MTH Fire Station with Sounds 6-30-9102
 - Crossings with Sounds

Off the Shelf Sound Opportunities

Weather and Arc Welding Simulators



- Thunder and Lightning
- Not all days on the railroad are sunny! Activate realistic driving RAIN and WIND SOUNDS with LIGHTNING that strobes with dramatic effect and THUNDER claps that shake the room -- All the with the push of a button!
- **THIS KIT INCLUDES:**
 - 2 High-Brite Multi-LED Lighting Strip
 - 1 Amplified Layout Speaker with Enclosure
 - 1 Lighting and Sound Controller Kit
 - Classic Push Button activator
- **FEATURES AND EFFECTS:**
 - Creates realistic thunder storm lighting and sound conditions!
 - Amplified layout mounted speaker provides powerful thunder, wind and rain sounds (mounts beneath your layout)
 - Engineered specifically for use with Broadway Limited's Rolling Thunder™ Subwoofer System***



- Broadway Limited Dealer
- <https://youtu.be/NwqAcn9-oNM>

- The GL Arc Welder

- **What is a GL Arc Welder module?**

The GL Arc Welder provides arc welding sounds and a synchronous bright flashing LED. The GL Arc Welder module is a 1.5" X 2.4" X .75" circuit board that consists of a voltage regulator, a sound chip, with build in amplifier, a volume control, and terminal strips. These modules can be played one time, or continuous looping until turned off.
- **What can this GL Sound Module do for me?**

The purpose of the GL ARC Welder module is to bring your ARC Welding scenario to life with sound and synchronous flashing simulating the real thing.
- **Where can I use these sound modules?**

GL ARC Welder module can be used anywhere around the layout, under the layout, or in buildings. The LED and speaker can be placed anywhere you desire.
- **Innovative Train Technology Products**
P.O. Box 5042 West Hills, CA 91308
818-926-1143
Email: george@ittproducts.com

Custom Sound Modeling

Custom Sound Opportunities

Why add custom sounds to your layout rather than off the shelf?

- Cost is ~ 1/3 the cost of most Off the Shelf Solutions
- Smaller footprint on your layout
- You might already have the building or train car or crossing or automobile you like...
- The work to create a working sound module is simple and relies on many of the skills you use every day on your layout
- Variety!!!!

Off the Shelf Sound Opportunities

More on Custom sound variety

- One of my favorite manufacturers (ITT Products.com) has a catalog of ~200 in stock sound boards and can also create unique sounds for you!
- What types of custom sounds are there?
 - Let's listen to a few custom sounds:
 - <http://ittproducts.com/GL.html>

Custom Sound Modeling Examples

Custom Sound Modeling Example 1

Police Siren (Easy, \$18)

- Challenge: **Upgrade your Police Car to add modern electronic sirens!**
- Guide:
 - Order Kit: **Diecast Police Siren** from Evan's Designs or your train dealer. Make sure you get the 12-18 volt option.
 - Remove shell from your police car using small Phillips Screwdriver.
 - Install speaker harness and connect power supply wires to existing LED power harness if you have already added LEDs.
 - Make sure black switch for sound modes is outside shell.
 - Reattach shell
 - Super Glue speaker to bottom of vehicle facing downward. **Tip: Place several pieces of card stock roughly the diameter of the speaker, under the speaker to create a baffle which will triple your volume!**
 - Test all three sound modes and put on your layout
 - Demo:
 - <https://www.youtube.com/watch?v=SK5E5XUs01U>



Evan Designs
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Laporte, CO 80535
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info@modeltrainssoftware.com

Custom Sound Modeling Example 2

Fire Siren (Easy, \$16 plus LEDs)

- Challenge: Upgrade your Fire Truck to add modern electronic sirens
- Guide:
 - Order Kit: **Federal Q with Grover Air Horn** from Evan's Designs or your local dealer. Make sure you get 12 to 18 volt option. You might want to order an LED kit for Firetruck if you don't have LEDs installed yet.
 - Remove shell from your fire truck using small Phillips Screwdriver.
 - Install harness and connect power supply wires. Connect your LEDs to LED harness. Put speaker into the box in the rear of firetruck like I did, or super glue to fire truck bottom.
 - **Note: if your speaker is superglued to the bottom of the truck, follow the card stock tip in the prior example for a baffle and louder sound.**
 - Make sure switches for sound and lights are outside shell. You can superglue switches to the outside of the truck.
 - Reattach shell and Test
 - Demo:
 - <https://youtu.be/eifb51k2tVl>



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Custom Sound Modeling Example 3

A&W Root Beer (Moderate, \$70 plus building)

- Challenge: **Add Sound and LED String Lighting to an MTH Root Beer stand with AC**
- Guide:
 - Order any sound board, switch, speaker you would like, made by ITT Products, from ITT or your train dealer. I picked Amusement park sounds but there are 100s of other sounds for you. See link page 16.
 - Order string LEDs in white or color from Evan Designs or your train dealer.
 - Remove building from platform
 - Find a place for your speaker. Wire and solder the switch and speaker. Drill hole for your switch. Insert /tighten switch. Use two sided tape for board and speaker attachment to inside of building. Connect switch leads, speaker leads to board.
 - Drill hole for LED string to exit building. Superglue LEDs to parameter. Attach LED string power wires to existing AC terminals inside soldering.
 - Connect rectifier in to AC in on accessory. Connect rectifier out to sound board.
 - Reassemble and test.



Custom Sound Modeling Example 4

Caboose Gambling (Moderate, \$75 plus caboose)

- Challenge: **Add Gambling to a Caboose where Track Power is AC!**
- Guide:
 - Pick a large O Scale caboose without smoke unit.
 - Order Gambling Board and **Lever Switch**, made by ITT Products, from ITT or your train dealer. See link, page 16. I suggest, you use a **heavy duty 2" Dallee Speaker** available from your local train store for volume.
 - Order a rectifier board from your local train store (converts 18 Volts AC to 12 Volts DC if your caboose will be moving like mine) or if you want a static display on a track that is isolated, use a DC transformer or Evan Designs DC Power supply to power the board. See Power Supplies overview in Appendix.
 - Remove caboose shell.
 - Find a place for your speaker. Your speaker will be on a slight angle. Wire and solder the switch and speaker. Drill hole for your lever switch. Insert /tighten switch. Use two sided tape for board and speaker attachment to inside of caboose. Connect switch leads, speaker leads to board.
 - Connect power leads from Rectifier if you are using one, to sound board. Connect AC power to rectifier.
 - If a static display, connect light leads to sound board.
 - Reassemble and test.
 - **A word of caution:** This is delicate work in a small space. **Take your time** and **be sure to connect rectifier leads properly** otherwise a board might blow out. **Rectifiers often have heat sinks, keep away or shielded from plastic.**



Custom Sound Modeling Example 5

Add Sound to Woodland Scenics Buildings (Average, \$55 plus building)

- Challenge: **Add Sound to any Woodland Scenics Building (Barn example)**
- Guide:
 - Woodland Scenics buildings are beautiful, highly detailed models but in my opinion “miss the boat” by not offering a sound option.
 - The buildings are also offered in all three major scales O, HO, N which is an opportunity for all modelers.
 - I selected a Woodland Scenics Barn in O Scale. I always wanted a farming scenario on my layout to complement my horse corral and cow car and this was my chance!
 - I ordered the Barnyard sound board, switch, 2.5” speaker made by ITT Products, from my train dealer.
 - I noticed the building had many hollow spaces.
 - Found a place for the speaker. Wired and soldered the switch and speaker. Drilled a hole for the switch. Inserted /tightened switch. Used two sided tape for board and super glue for speaker attachment to inside of barn. Connected switch leads, speaker leads to soundboard.
 - Connected my DC to power (I used and highly recommend the Evan DC supply for the sound boards and building LED lights)
 - Tested.



Lessons Learned

- **Start small**
 - Too many sounds running simultaneously ruin the effect. Use switches!
- **Place sound cars equidistant throughout your trains**
 - Away from sound equipped engines
- **Adjust your volumes to imply distance in cities and landscapes**
 - louder is closer, softer is further away
- **Add supplemental non-sound accessories or figures to Off the Shelf products that complement the sound**
- **Picking the correct speaker is critical**
 - The larger the 8ohm speaker, the louder the sound
 - Remember to add a baffle if your speaker isn't loud enough
- **Look at the possibility of hiding your speakers in the landscape**
 - Use inexpensive speaker enclosures for fascia mounting. Landscape cloth works well on the layout
- **Having the right tools for sound modeling is critical**
 - Miniature screwdrivers, two sided foam tape, 22g wire, see appendix.
- **Custom sound boards use DC as the power source**
 - See choices in appendix, do not run custom boards on 18 Volt AC!

Appendix

- Custom Sound Switch Choices



LCS and MTH Remote WIFI

Lever

Push Buttons

- Custom DC Power Choices

Evan's 120AC to 12Volt Regulated DC 2 Amp
Can power three+ custom sound boards-*Best Solution*



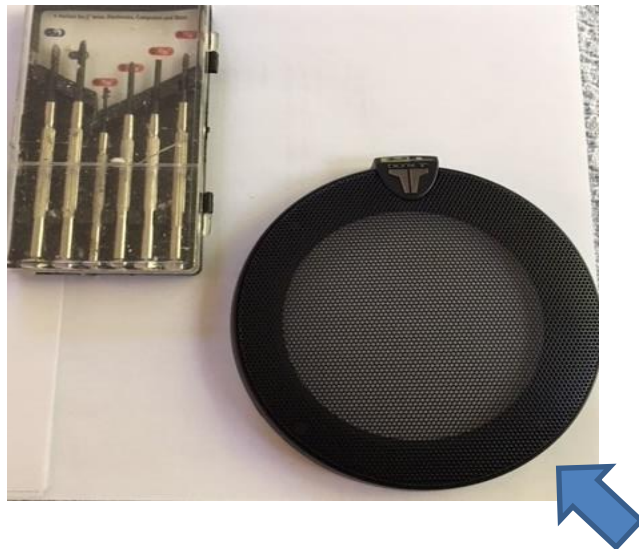
Rectifier
18 volts AC to 12 Volts DC
China



HO Transformer

Appendix

- Mini Screwdrivers and a Speaker Enclosure



www.parts-express.com/visaton-grill-for-frs8-series

- 22 Gauge Wire Dispenser



From Amazon

Appendix

Guide for Purchasing Sound Modeling Supplies

	Evan Designs PO Box 537 Laporte, CO 80535 Phone: 303-410-1118 www.modeltrainsoftware.com info@modeltrainsoftware.com	ITT Products PO Box 5042 West Hills, CA 91308 818-926-1143 www.ITTProducts.com george@ittproducts.com	Trains on Tracks 76 State Route 101A Amherst, Nh 03031 603-554-1543 www.trainsontracks.com ray@trainsontracks.com	Parts Express www.parts-express.com 937-743-3000
Sound Modules	Police Fire LEDs and Strings	Custom	Full Service Evans and ITT distributor	
Switches	Push Button Lever	Push Button	All	
Power Supplies	12 Volt DC Wall		Evans distributor & WiFi	
Rectifiers	Imbedded in harnesses for LEDs		Special Order (see Rick)	
Speakers	All sizes	2 and 2.5"	All sizes, Evans and ITT distributor, Dallee	Speaker Grills
Sound Cars Automobiles Accessories All Scales			All scales and manufacturers	
Buildings	Card Stock Modeling		All scales and manufacturers	
Tools/Wire	Yes		Yes	
Lightning Systems	None	Thunder Boards, No Lightning	Broadway Limited Systems and ITT Boards	