

Model LIGHTNING

A train of Tropicana empties pulls into Teoman Yard while a bolt of lightning flashes in the background. Alex Marchand shares how he used electroluminescent panels to add lightning effects to his gallery-style N scale model railroad.



Electroluminescent panels make it easy to add a thunderstorm scene to your model railroad

By Alex Marchand • Photos by the author

When I read the September 1993 *Model Railroader* as a kid, I came across an article by Rand Hood. "Modeling a rain-scape" helped me realize that simulating rainy weather on a model railroad was a viable option. More than a quarter century later, the inspiration from that article continues to reverberate in my modeling. I model Florida in N scale [See "Vistas from the new Bone Valley" in the December 2020 issue - *Ed*]. My favorite Florida weather is thunderstorms, so I made the weather on my layout a stormy day. To reinforce that theme, I added lightning bolts.

Electroluminescent light

If you have the right kind of layout, you could simulate

lightning bolts with overhead projection. Inexpensive lightning bolt projectors are sometimes available as Halloween decorations at big-box stores.

Since I have a gallery-style layout, projection wasn't an option, so I had to come up with another method. I settled on electroluminescent (EL) panels.

Electroluminescence is old technology. The lights are made of copper wire coated with phosphor that glows when an alternating current (AC) is applied to it.

Many modelers are familiar with EL light thanks to Miller Engineering, which has been using the technology to produce illuminated billboards for many years.

Electroluminescent light comes in wire form, thin panels of various sizes, and in different colors. I purchased



1 Electroluminescent panel. Alex purchased three EL lights for his project from online retailers. This photo shows the .55" x 23.6" panel/tape. To the right is a lightning bolt mask that's applied to the panel.

my white EL lights online in three forms: A 9-foot wire, a 2 x 6-inch panel, and a .55" x 23.6" panel/tape. **1**

Electroluminescent lights run on AC power and come with different power options, such as sound-activated controllers, battery-powered inverters, and 12V DC



2 Homemade masks. A digital cutter and black adhesive vinyl were all Alex needed to make lightning bolt shapes. This one, attached to a 2 x 6-inch EL panel, was used for the bolt shown above.

inverters. I wanted to power my EL lights with a sound-activated controller to sync the lightning flashes with the thunder sounds. None of the low-cost panels I could find included a sound-activated controller; only the wire did.

There was little price difference between buying a

sound-activated controller individually or getting it with 9 feet of EL wire. Although I knew the wire probably wouldn't work for modeling lightning, I bought it anyway just for the controller.

Even though EL light can technically be run off regular AC power, you want to use inverters made specifically for it, as they provide the optimal frequency for longevity and brightness. All of the EL lighting I purchased had JST-SM 2-pin connectors. This proved fortunate, as the wiring on my layout uses the same connectors.

The EL panels can be cut into different shapes. For this project, I opted to make lightning bolt masks using black adhesive vinyl and a digital cutter. I then applied the vinyl to the panels **2**. The same effect could be achieved using any opaque, easy-to-cut material, such as black poster board, glued or taped over the EL panel.

Bringing it all together

My layout's backdrop is made of foam core board covered with printed paper. All I

needed to do was cut a slot in the board for the EL panel and wiring. After I taped the components in place, I used spray adhesive to attach the printed paper backdrop over the panel and wiring.

Since the backdrop paper is semitransparent, when the EL panel is illuminated, an evenly lit lightning bolt appears from what seems like nowhere **3**. Depending on the paper used and the layout lighting, the black mask might be visible. If it is, paint the mask opaque white.

I used a single sound-activated, battery-powered EL controller to operate both EL panels on my layout **4**. Since I wanted the EL panels to power up on the same switch as the rest of the layout, and since I didn't want to be restricted by batteries, I used a 3V DC power supply instead. There are many tutorials on the internet that show how to convert batteries to plug-in. The method I used involved making two faux 1.5V AA batteries out of styrene tubing with small screws on the ends, wired to a 3V DC power supply.

The thunder sounds on my layout are provided by a Dream Player Pro (pricom.com/audio/DreamPlayerPRO.shtml). A clap of one's hands is all that's needed to activate the lightning.

An economic solution

For less than \$20, I was able to add two bolts of sound-activated lightning to my layout. It was well worth for a really neat, yet relatively simple, effect.

Although I used EL panels to make lightning bolts on my layout, they could be used with semitransparent backdrops in other ways. A few ideas that come to mind include simulating the moon or setting sun or illuminating windows in a city skyline.

I'm sure there are plenty of applications for EL light on model railroads that I've yet



3 Before and after. These photos show the EL panel when it's illuminated (top) and off (bottom). The backdrop is semitransparent paper attached to foam core board.

Materials list

- White electroluminescent panels
- Sound-activated, battery-powered electroluminescent controller
- 3V DC power supply
- Black adhesive vinyl
- Semitransparent printed backdrop



4 Two for one. Alex uses one sound-activated, battery-powered controller to operate both electroluminescent panels. He powers the controller with a 3V DC power supply.

Alex Marchand is a regular contributor to *Model Railroader* magazine.