

## Trigger Accessories Electronically Product Review – Lionel 153IR Controller by Ted Piunno

This past November I had the opportunity to install and test Lionel's 153IR infrared accessory controller on the floor layout at the Salvation Army 2002 Doll Tea. Until then I was not familiar with the 153IR, which allowed me to assume a novice's approach to the project. Being an electronics hobbyist, my interest in experimenting with the 153IR was high. This new method for triggering trackside accessories was intriguing, especially considering my past frustrations with track contactors and insulated track sections. Because of the wide variation in weight of different rolling stock, adjusting track contactors can be difficult. Using insulated track sections works fine unless you wish to add a train-actuated accessory to track that was previously installed on a layout. The 153IR controller alleviates these problems.



### **The 153IR Controller Features**

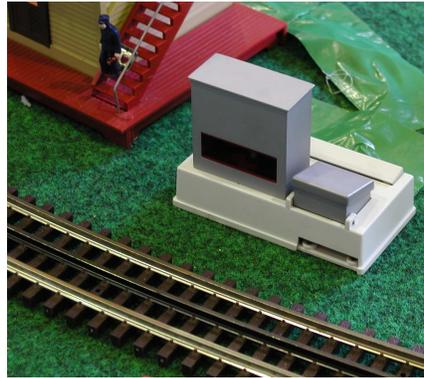
The 153IR contains an infrared transmitter and an optical receiver. The transmitter sends a signal across the track. When a train passes by, the signal is reflected back to the receiver. When the receiver "sees" the infrared light beam, it electronically activates the accessory. The activation circuitry includes a zero to five-second adjustable delay so that the accessory will continue to be engaged after the last car passes the controller. The controller also has a sensitivity adjustment that allows you to adjust for distance to the passing train and for locomotives or cars with dark colored finishes. It is also possible to use two 153IR controllers to trigger an accessory from either direction.

The 153IR is housed in a realistic die-cast structure that looks at home anywhere on your layout. The infrared controller is ideal for powering automatic trackside accessories like the gateman. For proper operation, it must be installed no more than 2 ½" from the track. The controller operates on 12 to 20VAC and can be powered directly from the track using the removable lock-on connector, or from a separate auxiliary power source. Lionel recommends using a separate power source since "borrowing" accessory power from the track may affect the track voltage supplied to the train.

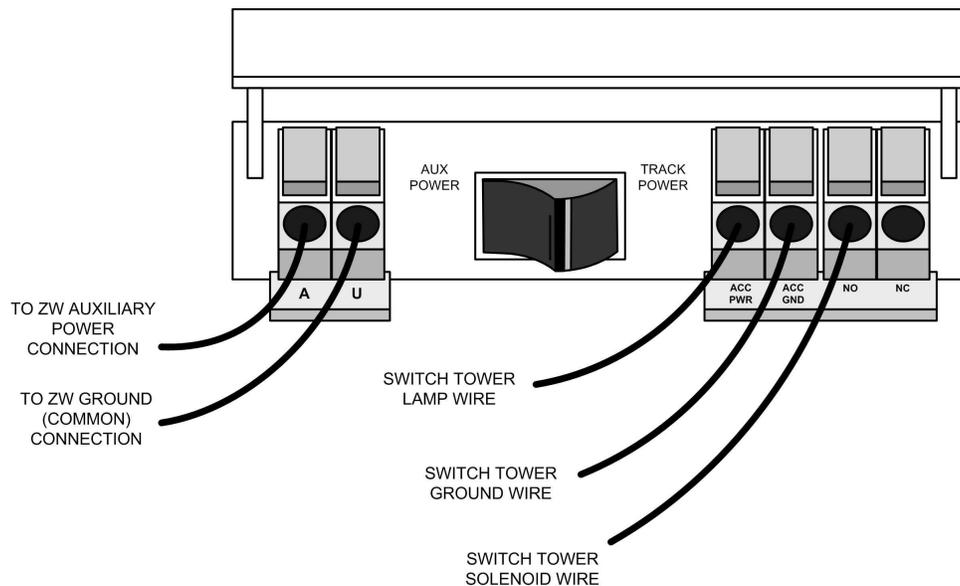
The instructions manual is clear and concise regarding installation requirements and hookup alternatives. It includes wiring diagrams for various Lionel accessories and an advanced wiring section for accessories that have more than two connections.

## Hook-Up and Operation

On the Doll Tea layout, I used the 153IR to operate a Lionel 445 Operating Switch Tower. I preferred to power the controller separately and removed the track connection clip. I set the unit about an inch and a half from the track and ran two wires from the ZW's auxiliary power connection to the controller's Auxiliary Power Supply connection.



The 153IR's pushbutton wire connections made wire hook-up very easy. I wanted the switch tower's light to stay on so I connected the lamp wire to the ACC PWR connector, which provides unswitched accessory voltage. Finally, I connected the solenoid wire that operates the switchman to the controller's NO (normally open) connector, and the tower's ground wire to the ACC GND connector.



Testing the 153IR controller's operation was straightforward. I ran the train passed the controller several times and adjusted the sensitivity control so that the unit would trigger reliably on any car color. Then I set the delay for about four seconds. I found that the unit ran best at about 14 to 18 volts. Lower voltages produced somewhat erratic triggering when the train passed by. We ran the 153IR for four hours on Friday, eight hours on Saturday and eight hours on Sunday. It operated flawlessly for the entire period and never required any intervention.

## **Recommendation**

If you are tired of tinkering with track contactor adjustments or don't want to pull up track in order to install insulating pins, I highly recommend the Lionel 153IRController. Its easy installation, appearance, flexibility and reliability make it worth the \$29.95 suggested price.

## **Specifications**

Dimensions: 5" x 4.5" x 3.5"

Stock Number: 6-14111

Time-delay adjustment

Sensitivity adjustment

Accessory connections - ground, constant power, switched power ( normally open and normally closed)

Track connection clip

Auxiliary power supply connections

Power Selection Switch

Suggested Retail price: \$29.95