

## General Instructions (i.e. for Lionel® products)

The one side of the relay with two terminals powers the relay coil. You need to have 10-14 volts to the (12Vac/dc) leg. The COM terminal completes the circuit to activate the relay. The output side is where your NO and NC contacts are to control your accessory. The common on this side provides power for these outputs.

### Wiring Examples:

**NEW:** Lionel 71-4098 Mainline Auto Crossing Gates – Lionel's gates connect a little differently than MTH: Connect the input side of the relay the same as the diagram. Yellow connects to NO and White to NC on the relay, too. But the Red needs to go to transformer common and Black & Blue to transformer accessory output (around 12V-14V). Connect another wire to the accessory output and then hook it to "COM" on the output side of the relay to power the accessory.

Lionel 450 Signal Bridge – Requires two relays, one for each track, for prototypical operation. Connect #2 (NO) from signal bridge to NO on relay, #1 (NC) to NC and connect common externally to transformer. Bring in power accordingly.

### Final Notes:

1. Under the table mounting in any position is OK.
2. Note: An auxiliary transformer such as our T-45 can be used to power both the relay and the accessory(ies). Follow instructions included with T-45 for complete information.
3. The contacts are robust enough to use for block control.
4. **Visit our web site at [www.scottsodds-n-ends.com](http://www.scottsodds-n-ends.com) for the latest in wiring information and installation ideas – i.e. block control.**

MTR-12T Manual 1.5 7/2006



## MTR-12T Instruction Sheet

*Thanks for choosing our MTR-12T model train relay for use on your layout.*

Applications for this relay in Model Railroading include operation of any device that has wiring requirements for NO and NC (normally open and normally closed) connections. This means that a particular accessory includes a feature that is normally turned on most of the time (NC), but another feature is ready to be turned on instead (NO). So, referencing a train layout, a dwarf signal hooked up to a pre-designated block of track would normally show a green light for "all clear" (NC). But when a passing train enters this block, the MTR-12T relay will activate the NO red light on the dwarf signal to warn that the track is occupied. As soon as the train is clear of the block, the red light is turned off and the green turns on again. With this theory in mind, we can apply this relay for a number of applications.

### Features:

- 12 volt AC or DC operation
- 15 amp contacts
- Transient protection
- Anti-clatter circuitry
- LED status indicator (coil energized)
- Screw terminals
- Mounting base
- 1 year warranty

So much for a basic overview, let's wire:

### For MTH® Scale Crossing Gates:

1. Mount base on your table (under side o.k.) and snap in relay assembly.
2. The red and black wires on the crossing gates need to be connected to the power (10 – 14VAC) and common, respectively, from the transformer.
3. Identify the block that will control the relay and cut the rail accordingly. Run a wire from the "control rail" COM on the relay.

4. Connect power from transformer, typically 10 – 14 VAC, to screw terminal labeled 12 Vac/dc.
5. Connect NO wire (yellow) from both crossing gates to NO screw on base.
6. Connect NC wire (white) from both crossing gates to NC screw on base.
7. Similarly, connect the blue wires to COM screw on output side of relay.

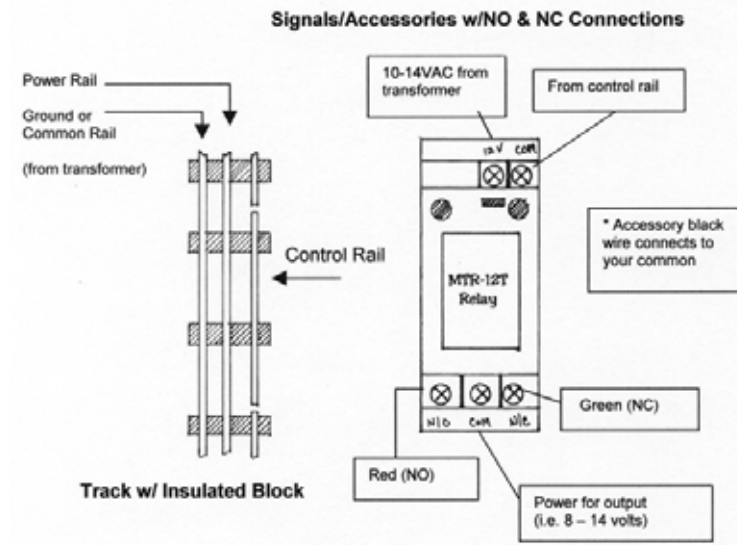
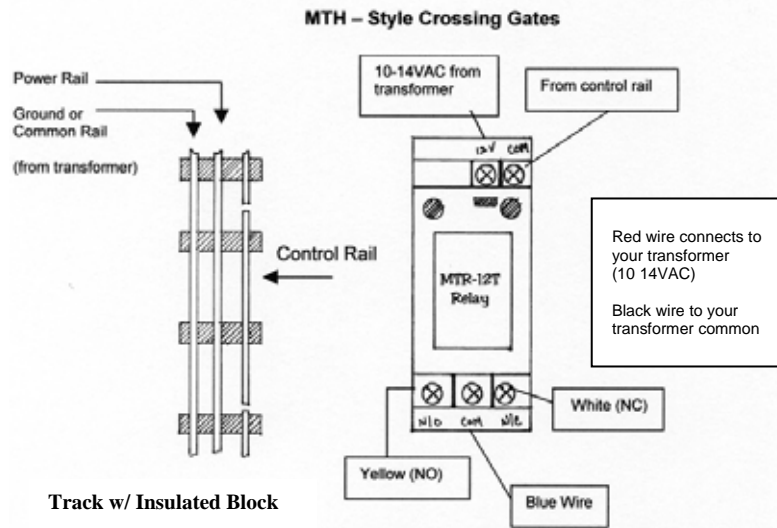
Note 1: If running a double track – or more – multiple “control rails” can activate this one relay, which would operate 1 pair of crossing gates. Simply connect to control rail COM contact as necessary.

Note 2: Yes, the relay can work off of track voltage, but the voltage must be high enough to activate relay, which is approx. 10VAC. If you don’t want to control the relay off your primary transformer, maybe you should consider an auxiliary transformer such as our T45 instead.

3. Connect power from transformer, typically 10 – 14 VAC, to screw terminal labeled 12Vac/dc.
4. On these accessories, black is common. Connect to your common already identified on your layout (i.e. common on transformer).
5. Connect NO wire (usually red) from accessory to NO screw on relay.
6. Connect NC wire (usually green) from accessory to NC screw on relay.
7. Connect power to COM on output side of relay. This can be the same voltage as the relay coil or less depending on your preference (brightness of light).

Note 1: Cantilevered bridge with two lights (one for each block) require two relays for prototypical operation. Same for 1 over 1 signal.

Note 2: For a block where you want a signal on either end of the block, only one relay is needed! Wire second signal to NC & NO contacts, and black to ground.



**For Cantilevered Signal Bridge, 7 Light Block Signal, Scale Dwarf Signal, or operating block signal.**

1. Mount base and snap in relay assembly.
2. Identify the block that will control the relay. Run a wire from the “control rail” to the COM screw terminal on the relay.