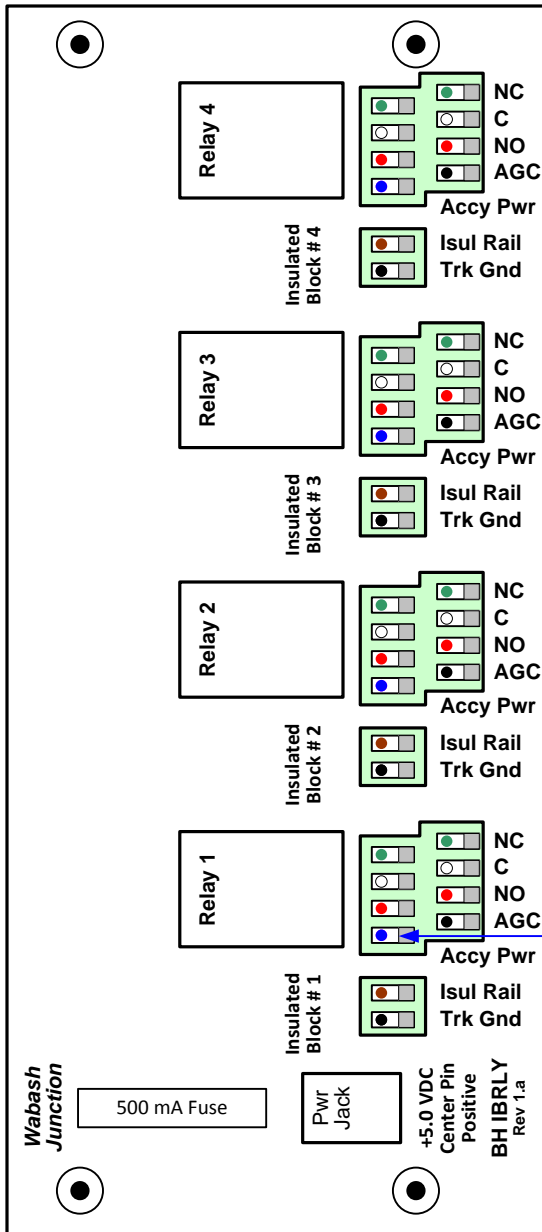


# IBRLY Instruction Sheet

Thank you for purchasing the IBRLY, Insulated **B**lock **R**elay circuit board. The IBRLY is an electronic circuit board that has four SPDT (Single Pole Double Throw) relays that are individually triggered by an insulated rail section of track. Although each relay only offers one set of SPDT contacts, the output has been wired to two sets of captive screw terminals. This simplifies the wiring a pair of red and green signal lights, one at each end of the insulated block section.

## Single Device & Transformer

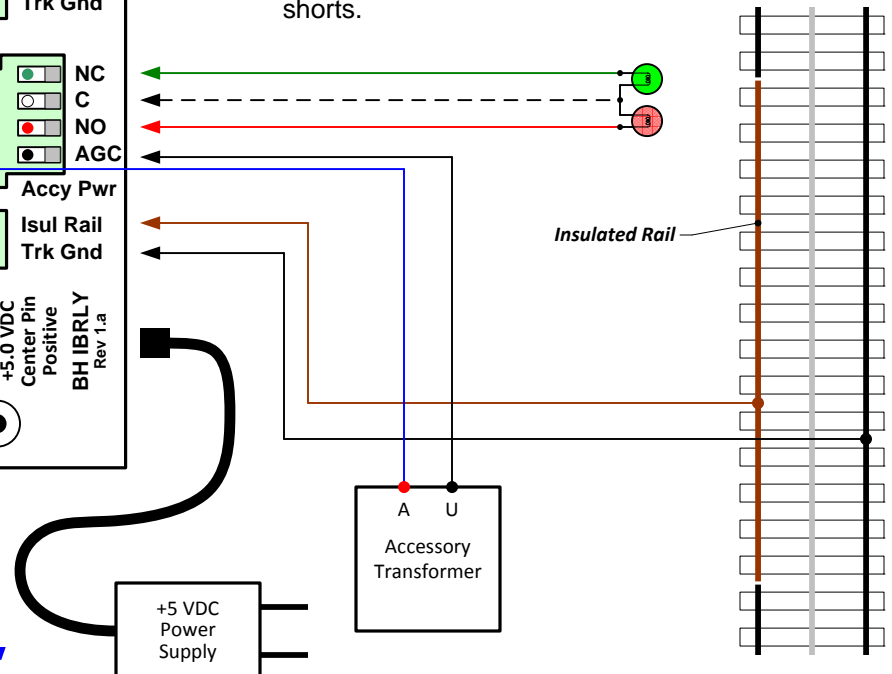


### Nomenclature

- |  |                |  |
|--|----------------|--|
| <ul style="list-style-type: none"> <li>● NC</li> <li>○ C</li> <li>● NO</li> </ul>  | Relay Contacts | <ul style="list-style-type: none"> <li>Normally Closed</li> <li>Common</li> <li>Normally Opened</li> </ul>             |
| <ul style="list-style-type: none"> <li>● AGC</li> <li>● Accy Pwr</li> </ul>        |                | <ul style="list-style-type: none"> <li>Accessory <b>G</b>round &amp; <b>C</b>ommon</li> <li>Accessory Power</li> </ul> |
| <ul style="list-style-type: none"> <li>● Isul Rail</li> <li>● Track Gnd</li> </ul> |                | <ul style="list-style-type: none"> <li>Insulated Rail</li> <li>Track Ground</li> </ul>                                 |

### Notes

1. The upper and lower pairs of "NC, C and NO" terminals are internally wired in parallel.
2. The pair of "C" terminals are also internally wired to the "AGC" terminal.
3. Relay contacts have a 6 Amp rating.
4. Accessory power is wired to the upper left terminal as indicated by the blue dot. ●
5. Track Ground is *not* connected to the AGC terminal, but could be connected externally with a short jumper wire.
6. Power for the IBRLY circuitry and relay coils is **+5 VDC**. **Only use the supplied power supply!** This method was chosen to eliminate wheel to track arcing. Additional circuitry protects the IBRLY from center rail to insulated rail track shorts.



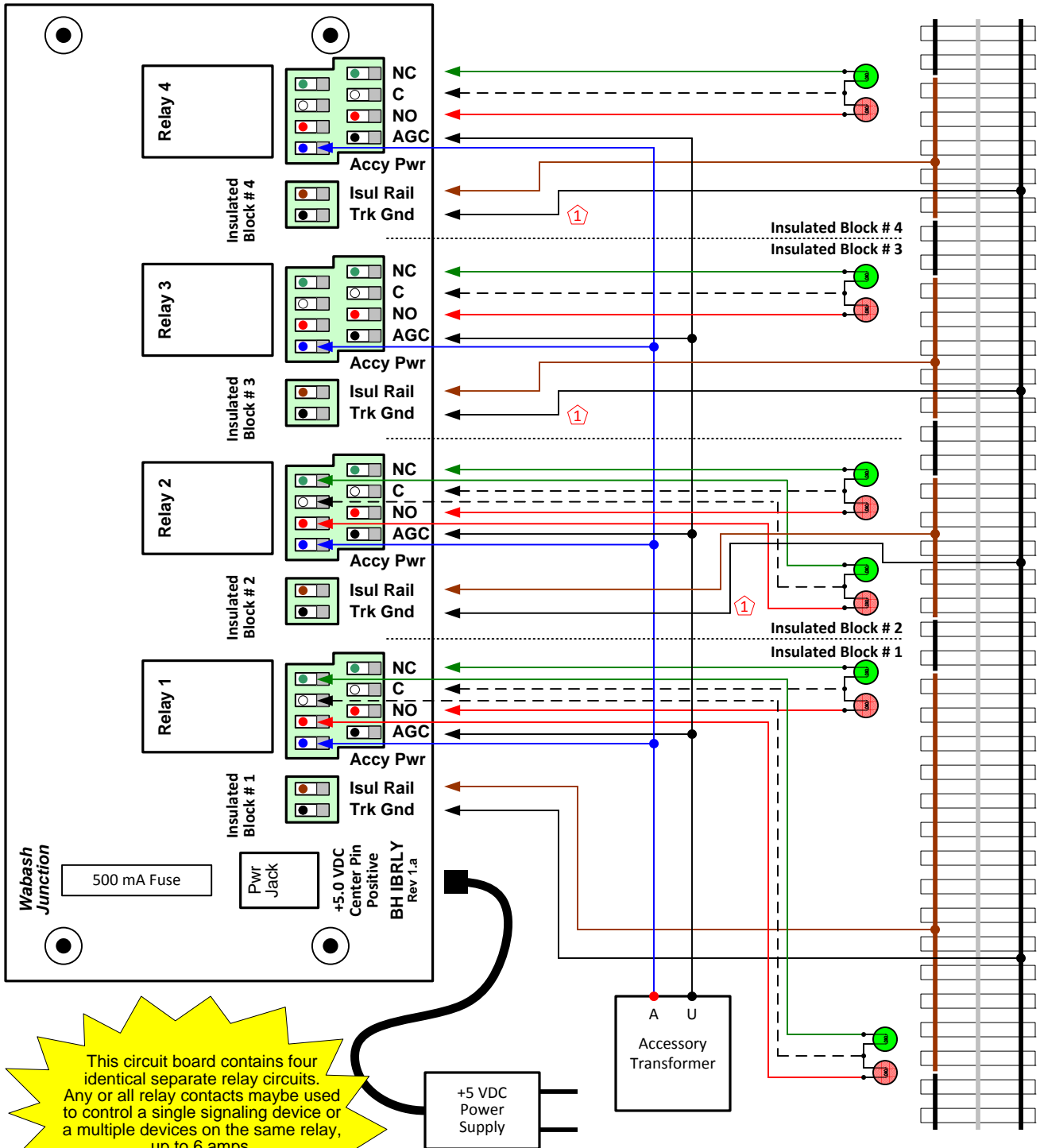
*Wabash Junction.....*

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**Connection using a single  
Lionel Dwarf Light**

# IBRLY Instruction Sheet

## Multiple Devices / Single Transformer



This circuit board contains four identical separate relay circuits. Any or all relay contacts may be used to control a single signaling device or a multiple devices on the same relay, up to 6 amps. If all signaling devices require the same voltage, a common transformer may be used.

**Note**  
 ① If layout uses a common "Ground" for all Insulated Block Sections, only one Track Ground wire is required.

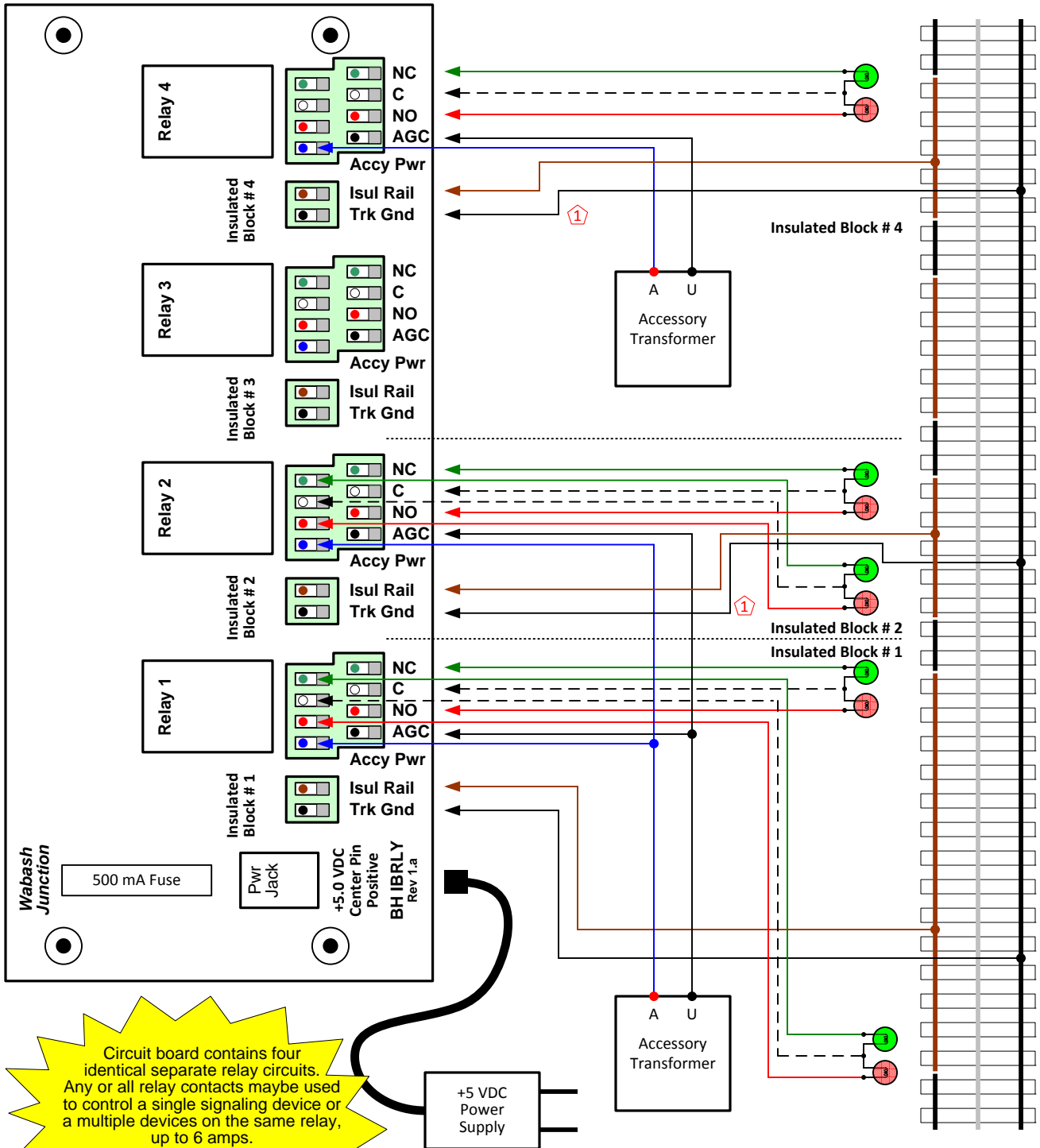
Connection using a pair of Lionel Dwarf Lights on Relays 1 & 2. Relays 3 & 4 having just a single Dwarf Light. All are being powered by a common transformer.

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# IBRLY Instruction Sheet

## Multiple Devices / Multiple Transformers



Circuit board contains four identical separate relay circuits. Any or all relay contacts may be used to control a single signaling device or a multiple devices on the same relay, up to 6 amps. Drawing is showing multiple accessory transformers to power multiple devices at different operating voltages.

**Note**  
 ① If layout uses a common "Ground" for all Insulated Block Sections, only one Track Ground wire is required.

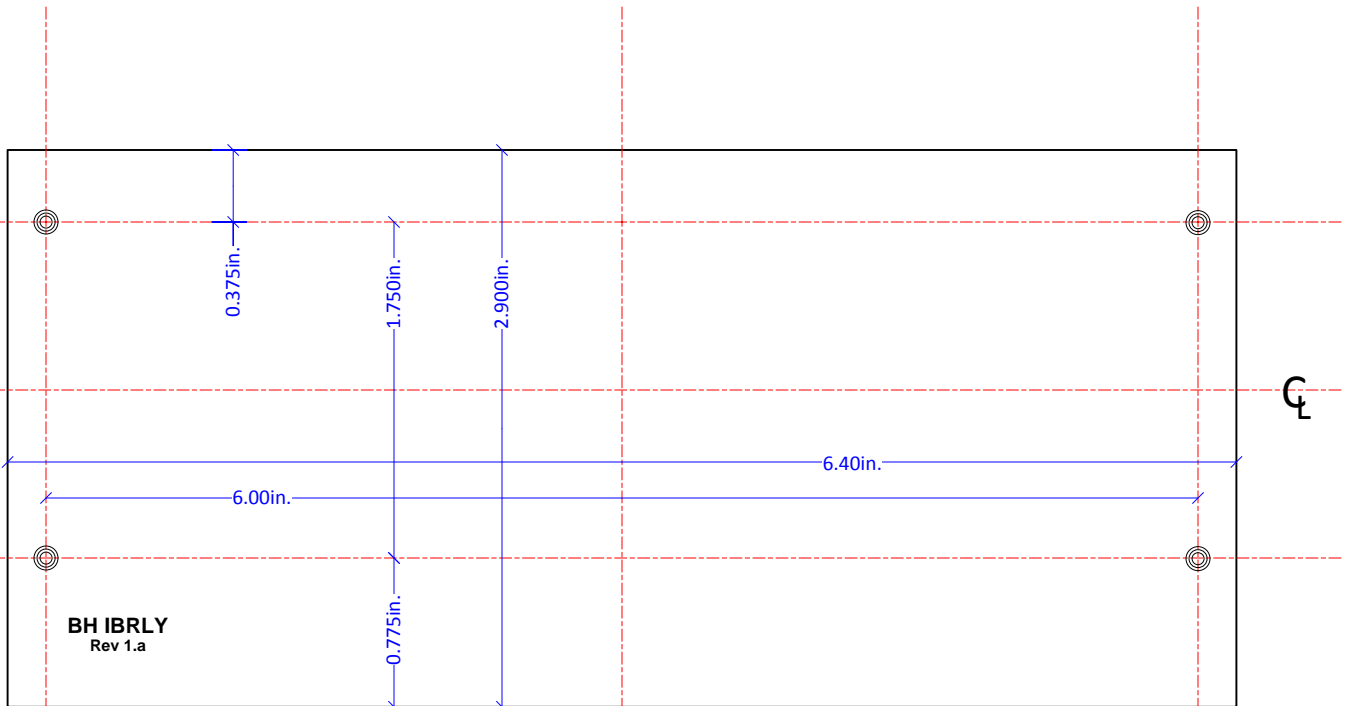
Connection using a pair of Lionel Dwarf Lights on Relays 1 & 2 powered by an Accessory Transformer. Relays 3 not used. A second Accessory Transformer is powering Relay 4 and a single Dwarf Light.

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# IBRLY Mounting Template

(Two copies have been provided)



The four mounting holes will accept a #4 screw. However, suggest using a #2 screw to allow for the mounting holes being off just a little bit.  
#2 wood screws, washers and nylon spacers for mounting are included.

Orient template with the "BH IBRLY Rev 1.a" in the lower left corner. This will place all connectors and wires looking at the floor. Mounting holes are not board center.

