DWARVIN
LIGHTING WITHOUT WIRING©
BY TRAINZ

For ages 14+

Dear Customer:

Thank you for purchasing a Turnout Controller kit with Signal lamps.

Whether you are going to use a **Stall Motor, Snap Bipolar** or a **Snap Twin Coil** controller the installation of the fibers with the signals is identical for all - see page on "**Signal Installation**".

Wiring

The 3 different offerings require different wiring:

Stall Motor Controller

- Clip the wires onto lead 1 and 8 from the Tortoise motor.

Snap Twin Coil Controller

- Take 3 wires from the 'switch machine.'
- Instead of wiring directly to the switch, interpose the Controller in between.
- The 3 wires go into the left 3 screw connectors (when facing the label on the Controller right way up).
- The wire that would normally go directly to the center connector on the switch goes to the center of the 3 screw connectors.

Snap Bipolar Controller

- Take 2 wires from the 'switch machine.'
- Instead of wiring directly to the switch, interpose the Controller in between.
- The 2 wires go into the left 2 screw connectors (when facing the label on the Controller right way up).

A unique feature of the Snap Controllers is the inclusion of 2 extra screw connectors on the right-hand side. These will accept AC or DC voltage from your layout if a wall-wart is not used to power the Controller. Alternatively, if a wall-wart is used, the output from these 2 extra screw connectors can be used to connect to another Snap Controller to power it.

We hope you find this kit the easiest approach to adding signaling to your turnout switches on your layout.

For helpful tips and instructional videos, visit our website: www.Dwarvin.com

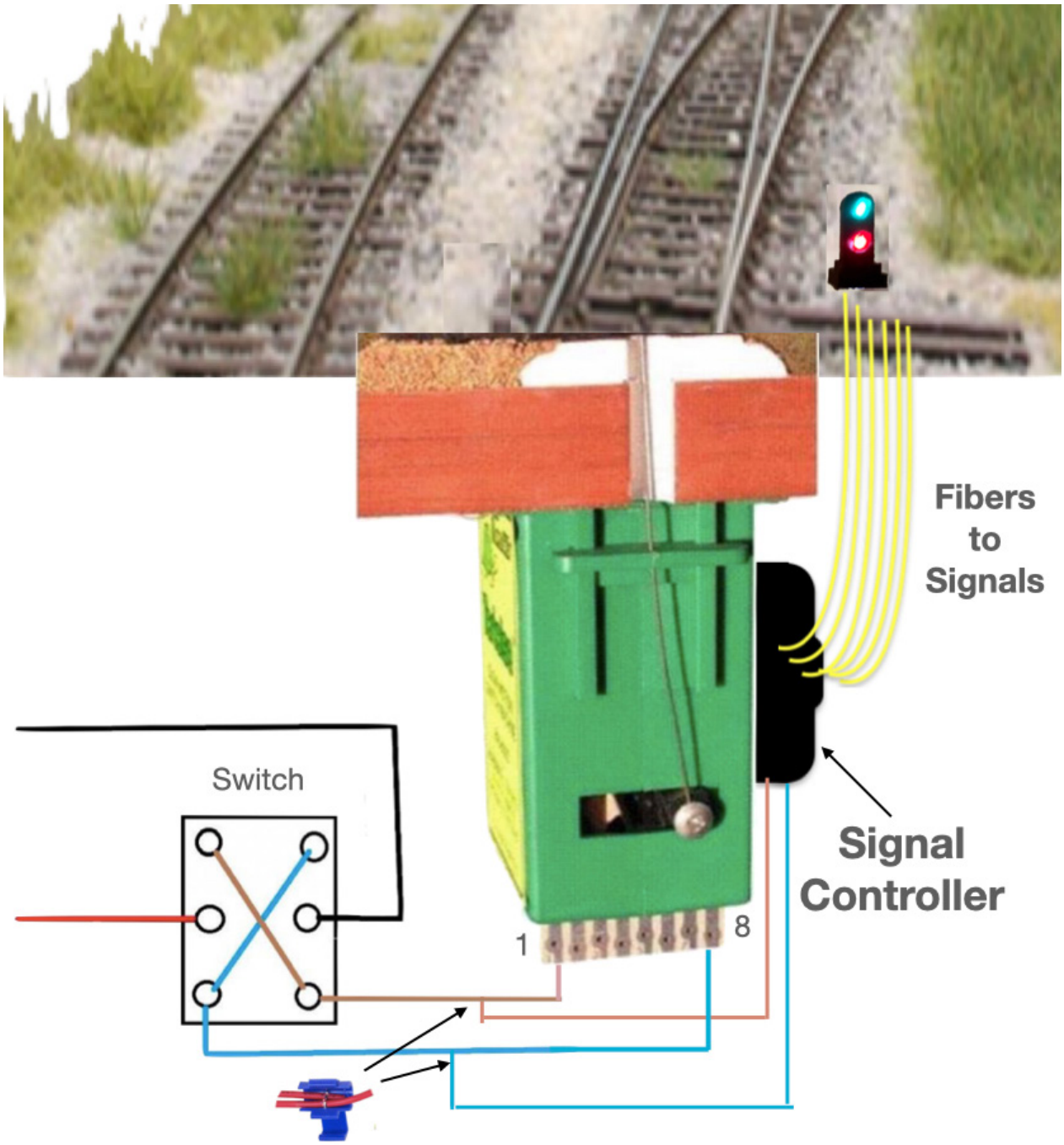
Appreciation: If you enjoy our product, please like us on Facebook: DwarvinEnt/

Concerns or questions? Please contact us:

- **Email:** customerservice@trainz.com
- **Phone:** 866-285-5840

Thank you, **Dwarvin – Lighting without Wiring® – by Trainz.com**

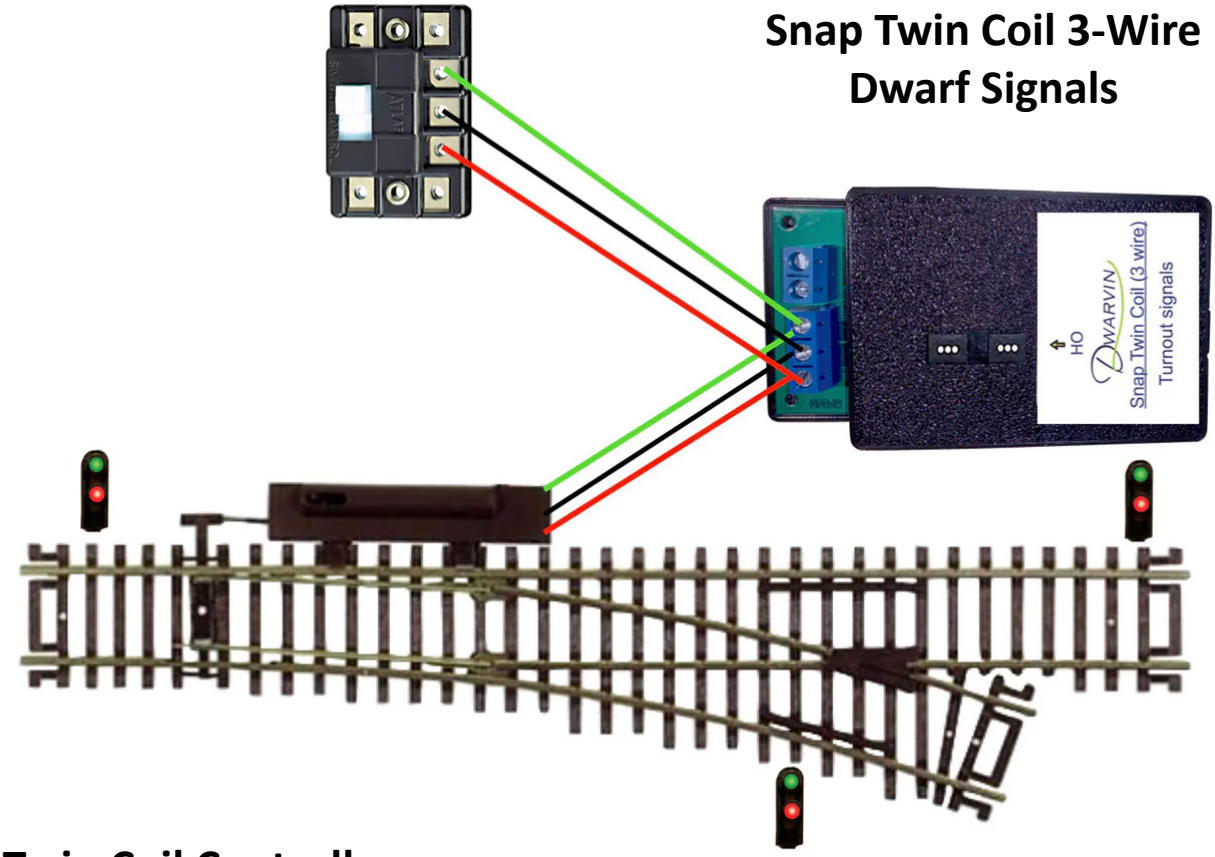
Wiring up the Turnout Controllers



Snap Turnout Controller:

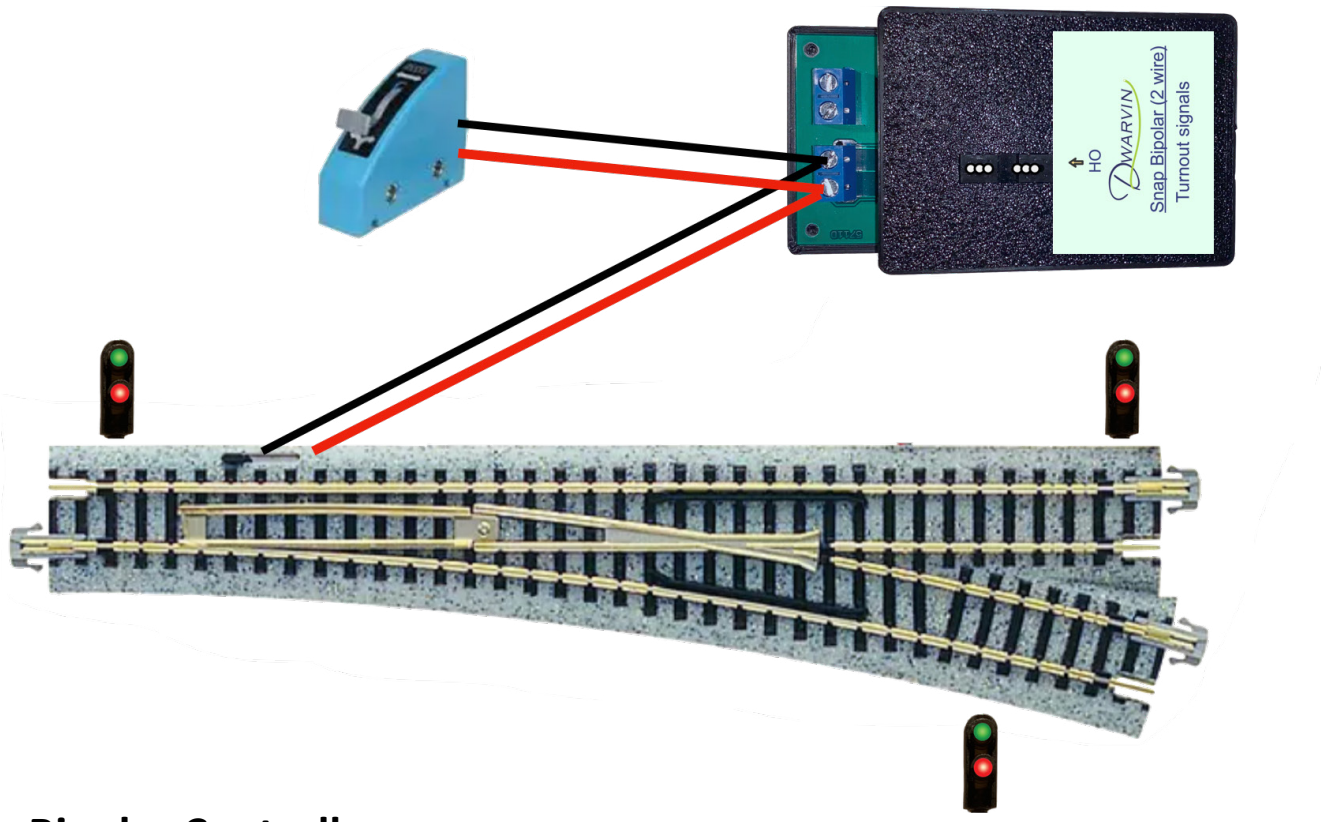
1. Attach the velcro piece provided to both the Turnout Controller and any of the 3 nonfunctioning surfaces of your switch machine.
2. Connect the wires from the Turnout Controller to the power supply wires on your switch machine somewhere between the Switch Machine and the Switch you have installed, using the suitcase connectors.

Snap Twin Coil 3-Wire Dwarf Signals



Snap Twin Coil Controller:

- Connect the 3 wires from the Switch machine to the Controller then to the switch.

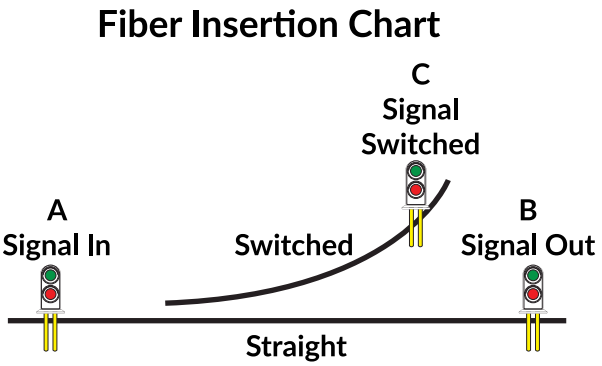


Snap Bipolar Controller:

- Connect the 2 wires from the Switch machine to the Controller then to the switch.

Signal Installation into Dwarvin Turnout Controllers

1. Check for light from the Turnout Controller that switches when you throw the switch. If no light appears, ensure you are connected to the correct wires and that the connections are complete.
2. Drill 3 holes (5/32 drill) at the 3 approaches to the switch. Mount the 3 signals into the layout, ensuring you insert the fibers through the holes first.
3. Selecting the correct fiber insertion:
   - Refer to the chart below for fiber insertion steps.
   - The ends of the fibers corresponding to the red light on the signal are marked red.
   - When the switch is set so that the locomotive goes straight through, the signals going into and out of that line should be Green for go, but the one coming in from the branch should be red for stop.
   - when the switch is thrown and it is in what we will call the “switched” mode, all the lights should be reversed.
4. Set the switch to “straight,” then insert the fibers into the part of the block that is lit (the “straight” section of the block). The signals will light up as designated in the chart below. Now Insert the remaining 3 fibers into the “switched” section of the block that is lit.



	A Signal In	B Signal Out	B Signal Switched
Straight	Green	Green	Red
Switched	Red	Red	Green