RR-CirKits

Specializing in Affordable Electronics for Model Railroads

BOD-8

8 Block DCC Occupancy Detector

User's Guide

Tower Controller I/O Modules

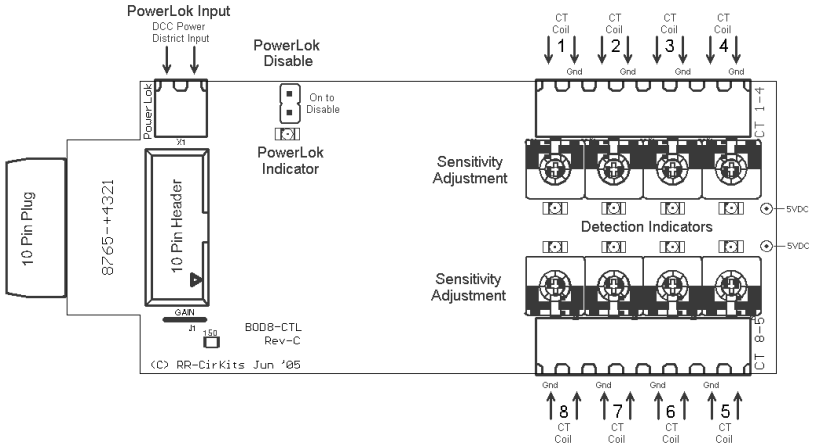
All RR-CirKits Tower Controller I/O modules may be plugged directly into the TC-64, or else mounted in Tyco 3-1/4" Snap-Track® mounted to the bench work and connected with ribbon cables. Each I/O module is equipped with two connectors to facilitate these connection options.

Remote Sensing The BOD-8 uses small CT (Current Transformer) detection coils placed directly on the track feeders between the rail and the power bus. Lengths of Cat-5 cable are the usual way to connect the coils to the detector boards. CT coil sensors cause no track voltage losses like those associated with diode drop detectors. Normal detection levels are 1ma. for use with 10K wheel sets. Sensitivity may be decreased with the on board pots for situations requiring less sensitivity. To further reduce sensitivity place resistors across the coils.

The BOD-8 outputs lines are low during train detection so the TC-64 or other I/O device should be configured as "Detector" for each port that is connected to a BOD-8. This inverted input mode matches most types of detector outputs.

Connections

There are two output connections and three input terminal strips on the BOD-8 board.



PowerLok Connections

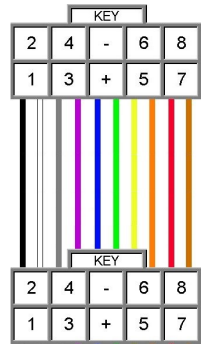
During a DCC bus power failure the PowerLok input on the BOD-8 instantly locks the detection status of each block detector. Unlike other detectors, the state of the layout will NOT change during a DCC power outage, neither to all occupied, nor to all vacant. The BOD-8 just suspends sending any occupancy changes until after power is restored and detection status has stabilized again.

To enable the PowerLok feature connect a wire pair from the PowerLok input terminal to the power district bus that supplies the blocks being detected. Then open the PowerLok disable switch. A power down condition locks the outputs.

Output Connector Pin Identification

The output connections use the standard TC-64 10 pin cable connection that is shared by all Tower Controller daughter cards. Both a male and female connector is provided, and either may be used depending on your requirements. The port connector wiring is as follows.

Pin number	*Connect ion*	*Color*
1	h (8)	
2	g (7)	
3	f (6)	
4	e (5)	
5	Ground	
6	+5VDC	
7	d (4)	
8	c (3)	
9	b (2)	
10	a (1)	



10 position IDC connector

Input Connector Pin Identification

The Input terminal strip wiring is shown on the board layout drawing. Use Cat-3 or Cat-5 twisted pair wire to connect the CT coils. (use one pair per coil) Pass one track feeder through the center hole in each CT coil. You may locate the coil at any convenient point between the DCC power bus and each isolated block detection section. If you choose to provide your own coils, the board is designed to use 100 turn coils, but will accept a wide variation. Extra turns may help.

BOD-8 inputs may also be used as simple infra-red detectors by connecting 10K to 470K ohm pull up resistors from the 5VDC points to the input lines. Connect your sensors across the input pairs. Contact us for more information.

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