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Digitrax Command Control



## BD-1 Occupancy Detector Installation Information

See **Digitrax DS54 Quad Switch Decoder Users Manual** for complete installation instructions and technical information. This manual is available at no charge from your dealer. If your dealer is out of these manuals, call Digitrax at (770) 441-7992 and we will gladly send you a copy.

### BD1

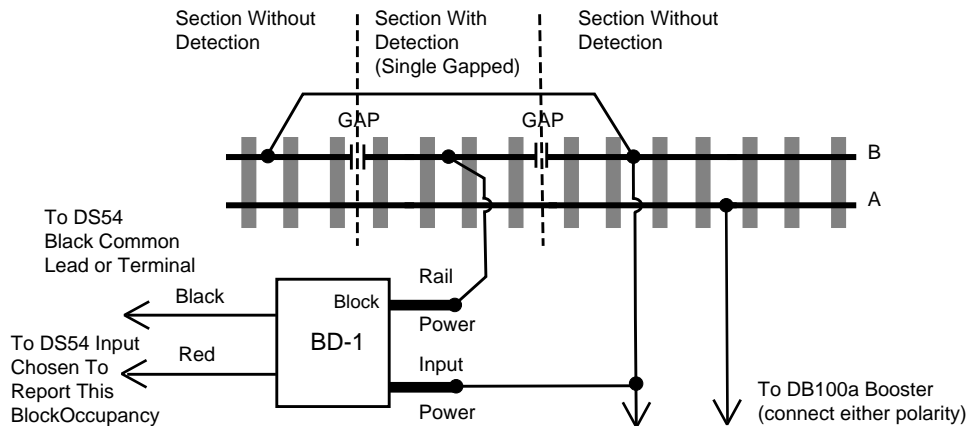
#### Block Occupancy Detector for Use with DS54

High Sensitivity Block Occupancy Detector

Designed for Digital Command Control Operation

Designed for use with the Digitrax DS54 Quad Switch Decoder & LocoNet

Anti-Chatter Filter to Ensure Reliable Detection



- (1) When a BD1 is connected to a powered DS54, the red lead will be above +6 Volts (with respect to the black lead) when a resistor of 4-7 kohms or less is connected across the detected rail section. Use this to test whether detection is functioning.
- (2) The detected track section must not have any other devices connected across it to allow unoccupied signal (0 volt output).
- (3) The BD1 will operate within a second after a locomotive (or resistor wheel set) is wholly inside the detected section. If a metal wheel bridges either gap, the BD1 will turn off within about a second. Brief gap shorts are ignored by the BD1.

The BD-1 is a high sensitivity track detector designed for DCC operations. It requires a maximum resistance across the tracks of 10Kohms to operate "ON" properly. You should not connect any other devices or loads across the detected track section, otherwise the BD-1 will not be able to report "OFF" or "block clear."

The thin Black wire on the BD-1 should be connected to the Heavy Black DS54 Common Wire & no where else.

The Thin Red wire from the BD-1 should be connected to the appropriate DS54 input lead chosen for the task.

The short heavy leads of the BD-1 are connected to carry the track current from a powered track section into the detected track section. The detected section is where the detection rail has been single gapped at both ends. For correct operation it is important that the heavy lead marked "Block" be connected to the isolated rail of the section you wish to report occupancy for.

To lower the sensitivity of the BD-1, you can connect a 1/4 watt resistor in the range of 47 ohms to 1K ohms across the heavy leads of the BD-1.

The output of the BD-1 can be checked with a regular DC volt meter. If the BD-1 is over +6 volts with respect to the black wire, the block is reported occupied or "ON". You can put a 10K 1/4 watt resistor across the detected section to verify that it is working correctly, when the voltmeter is connected and the BD-1 black and red leads are correctly connected to a DS54.

The BD-1 has internal "anti-chatter filtering" to ensure that when the locomotive crosses the single gap into the detected section, the uncertainties of where it is picking up track power from are filtered out. The BD-1 will only show "ON" when the locomotive (or other current load) is inside the detected section and there are no shorts across the isolation gaps.