



## BDL716

### Block occupancy detection for 16 (DS) occupancy sections

#### Features:

- 16 DS sections, similar to BDL168, for DCC occupancy detection.
- All plug-in connectors for simple and easy installation and service.
- User defined as 16 DS reporting addresses in 1 to 2000+ DS range.
- Easy setup with device Option Switches (OPSW)
- Powered by 2mm DC jack, 8V min to 22V max.
- Configured to operate with DCC booster power from; DCS52, DCS100, DCS210, DCS210+, DCS240, DCS240+ Command Stations, DB210 and DB220 boosters.
- Can split into two 8-DS areas to operate from two separate boosters.
- Optional Detection and Power status led connector for remote state indication, compatible with e.g. LT5C. [5V@1K ohm led source]

#### Parts List

1 BDL716 Block Detector	2 8-pin DS plugs
1 PS14 14V power supply	1 4-pin Track power plug
1 LT5C led status indicator	1 Instruction Sheet

#### 1.0 BDL716 Setup.

To test the BDL716 and setup for using on your LocoNet layout.

1. Figure 1 shows the typical connections to operate the BDL716 on a LocoNet layout. This arrangement allows use of two separate boosters to power all 16 DS sections
2. To use a single Booster, delete Booster 2 shown and connect the RailA (RA) and RailB (RB) feeds in parallel as shown by dotted lines in Figure 1, to just Booster 1.
3. The 16 DS sections will report consecutively and the same for either Booster powering configuration.
4. For initial testing, connect power from a compatible DCC booster track-bus feed via the paralleled RA/RB terminals of the BDL716's 4-pin track power plug.
5. When PS14 powered, the green ID LED should light and will briefly wink OFF at about 2 secs as a "heartbeat" showing the unit is powered and operational. The ID led will also wink OFF briefly if a LocoNet message is seen. Additionally the lower Zone LED on an LT5C will light when DCC waveforms are detected on the RA terminal(s).
6. For operation, a PS14 or similar DC 12V/100mA+ power supply must be plugged into the BDL716 DC 2mm power jack.

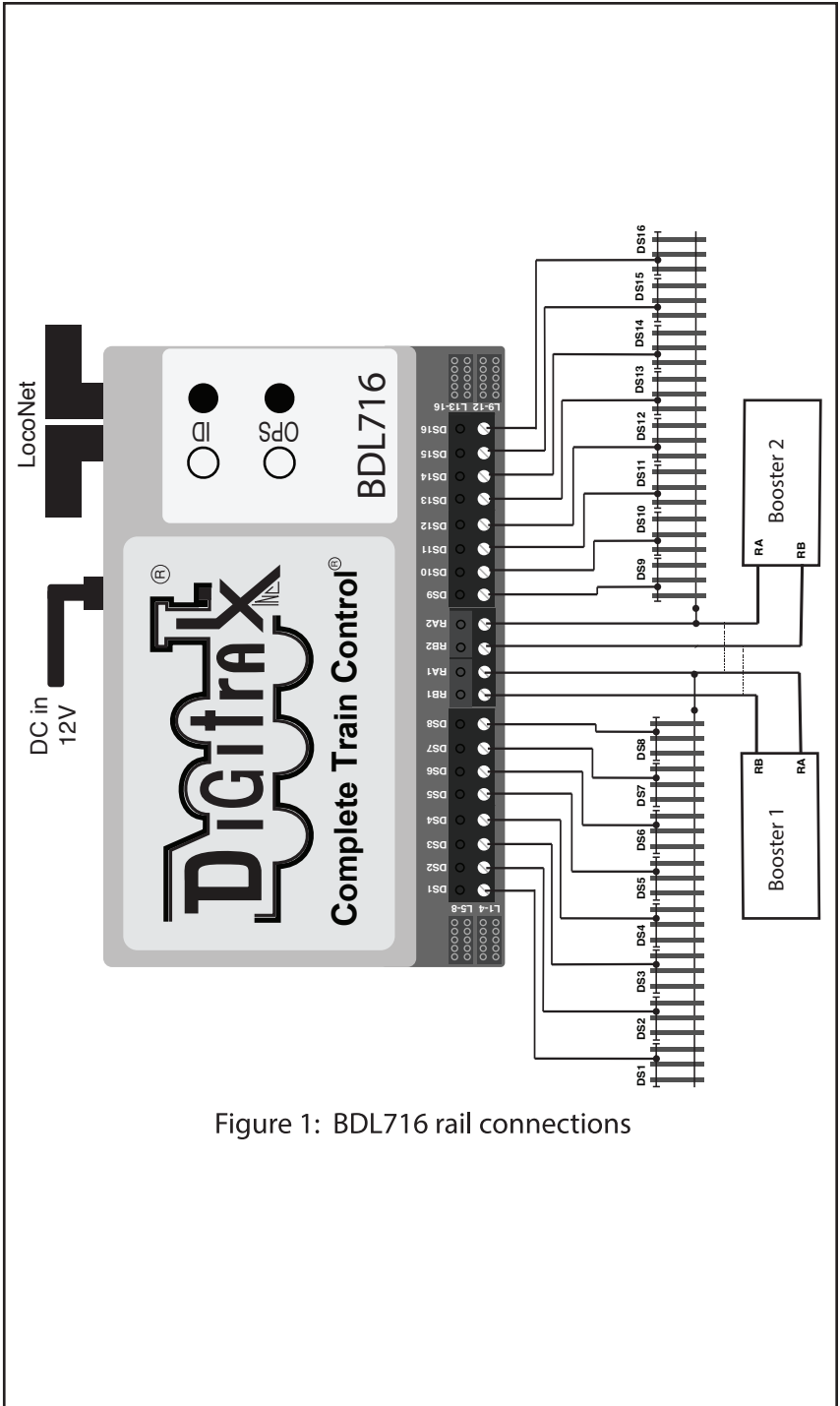


Figure 1: BDL716 rail connections

7. Plug in an active LocoNet to either BDL716 RJ12 connector. The red OPS LED will light up when connected. With no active LocoNet connected the BDL716 will still provide Occupancy detection, with Occupancy detection indicated on just the 16 status LEDs via e.g. an LT5C or layout led indicators using the four 10pin header groups marked L1-L16.
8. To set the board base address, press and hold down the ID button for about 3 seconds until the ID and OPS LEDs blink alternately, then release the ID button.
9. From your system now send a SW command. This SW# will become the BDL716 Base address. This sets the value of DS1 Occupancy report to this DS number. The following DS2- DS16 use the next 15 consecutive numbers. The ID and OPS LEDs will then stop blinking, showing the BDL716 has set the unit's Base address of DS1 to the number of the SW command you just sent, over LocoNet *or via the DCC track*.
10. Connect a test track between a DS and RailA connection. Place rolling stock with a decoder or resistor wheel set on this to check occupancy is detected on a plugged in LT5C, for each of the 16 DS sections. You can simply use an e.g. 10K ohm resistor with flying leads to perform this same check.
11. If Loconet is connected you should see corresponding detection activity messages for each DS occupancy tested.
12. Best practice is to have a LocoNet cable(s) connection in place, even if the DS messages are unused. This ensures system grounding and any booster transient rail offsets do not affect detection levels. An alternative system ground from the Booster can be connected to the DC input negative/ground return on the BDL716 12V DC input supply, the outside of 2mm DC plug.

**You now have initial verification that your BDL716 is working on your system. You are now ready to setup your layout DS wiring .**

## **2.0 BDL716 Options: OPSW changes**

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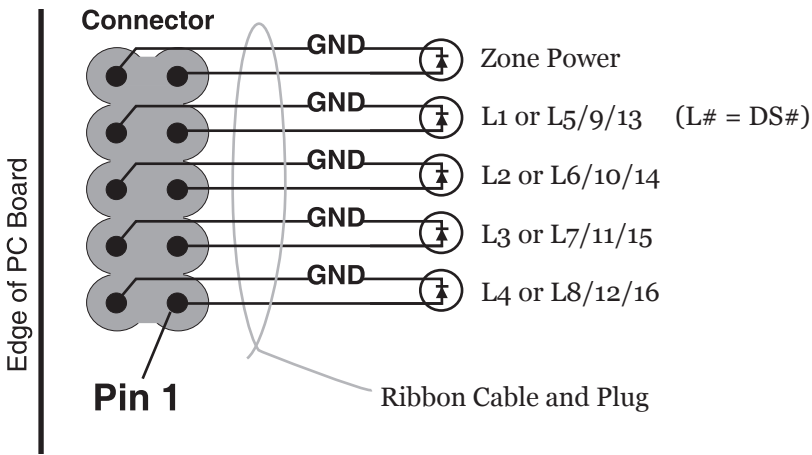
The BDL716 configuration and behavior can be configured using OPSW's. The Factory default OPSW settings will configure correctly for most common requirements.

1. Press the OPS button for about 3 seconds until the green ID and OPS LEDs blink together. Release the OPS button. The BDL716 is now setup to configure OPSW's by sending the required SW# as Closed (C) or Thrown(T) to setup an option.
2. Set the SW# from OPSW choices in Table 1 below, as C or T, matching the wanted settings.
3. When finished press and hold OPS button for 3 seconds to exit OPSW setup mode. The BDL716 will now restart with the new OPSW settings and adjustments in effect.
4. Factory default OPSW settings are shown in **BOLD**.
5. OPSW's not in this table are reserved and should be kept at Factory default settings.

**Table 1: BDL716 Opsw setting table:**

OPSW#	Default	Action
1	T	C = Set Sensitivity higher
2	T	C = Set sensitivity lower
3	T	C= Slow detection speed
15	T	C= Disable Occupancy on track power off
40	T	C= Factory Reset

**Figure 2: LT5C 2x5 pin, header wiring:**



### 3.0 Warranty & Repair

Digitrax gives a BDL716 Warranty against material defects for one year from manufacture. Visit [www.digitrax.com](http://www.digitrax.com) for instructions for returning items for repair.

**Please return warranty items directly to Digitrax - DO NOT** return items to place of purchase.

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The newest features are documented on the product pages of the website.

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