Note: This is a supplement to the directions provided by the manufacturer of the BD3A.

How the BD3A Works

The BD3A uses block detection, that is, it senses the current drawn by an engine or a car with resistance wheelsets within an ISOLATED electrical block on your layout. Any engine entering the electrical block triggers the board and causes the crossing guard flasher sequence to start. The lights will remain flashing until the engine leaves the electrical block.

The flashing does not stop immediately, however. There is about a 2 second delay to allow following cars in a short train to clear the crossing. Longer trains may need a set of resistance wheel sets in a trailing car to keep the flashers going longer. Resistance wheelsets are readily available from a number of manufacturers at relatively low cost.

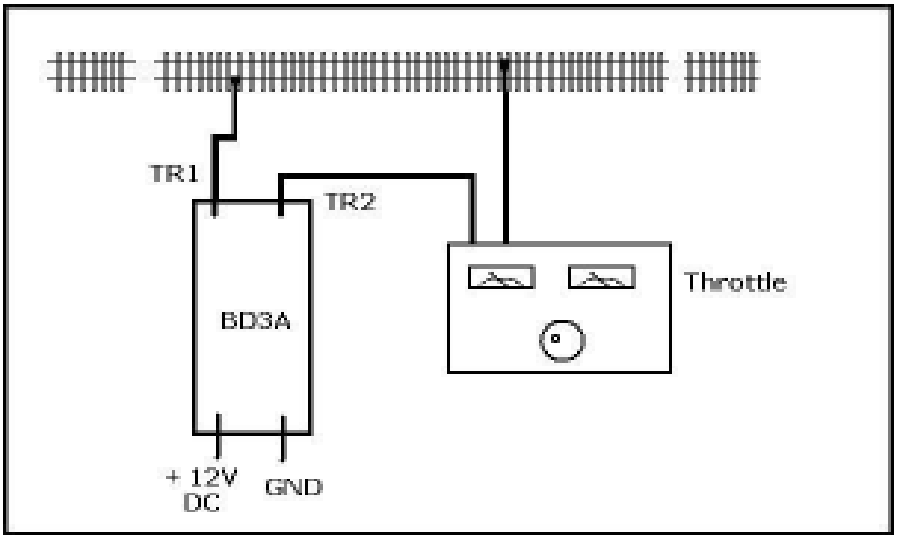
The BD3Ad requires a 12 Volt DC (NOT AC) power supply. It runs the board and powers the crossing guards. The board does not run off track power.

Setting Up Your Isolated Block.

The first task is to figure out the length and location of the isolated detection block for the road crossing you are "protecting" with crossing guards. The two primary factors are typical speed of an engine and typical length of train. If a typical train is fast, then the start of the block needs to be further from the crossing in order to have time for the flashing to begin.

Next, you must isolate the detection block electrically. Insulated gaps must be cut in both rails where the block begins and ends. Then feeder wires from the transformer are placed to provide power to the block. This is no different than how a layout is traditionally wired in electrical blocks to provide for multiple train operation or electrical troubleshooting.

The BD3A is then wired inline on ONE feeder wire to the block. (See diagram below.)



Note that the connections on the BD3A board are marked as illustrated (TR1, TR2, +12V, Gnd.)

Speed Loss when Engine Enters the block.

Because of the way all block detectors work, there is 1 a 1.2 – 1.4 volt drop between the detection block and the adjacent, non-detected block. This typically causes a small decrease in engine speed. This can be eliminated by wiring a separate bridge rectifier into the feeds of the blocks not equipped with a BD3A. (See Figure 3 in BD3A Instuctions.)

Wiring Crossing Guards

The illustration below shows how to wire typical crossing guard lights.

After connecting the crossing guards, connect the BD3A to a 12V DC power supply by the connections marked +12V and GND. Then run an engine into the detection block