# Signal System for Modular Layouts
# Frequently Asked Questions (FAQ)

Maintained by Gregg Fuhriman, warbnnt@yahoo.com

This list answers many common questions about the signal system described in the **February 2005** issue of **RailModel Journal**. To obtain back-issues from the publisher send a note stating the issue date with $6.95 per issue to (add $1.50 each for foreign):

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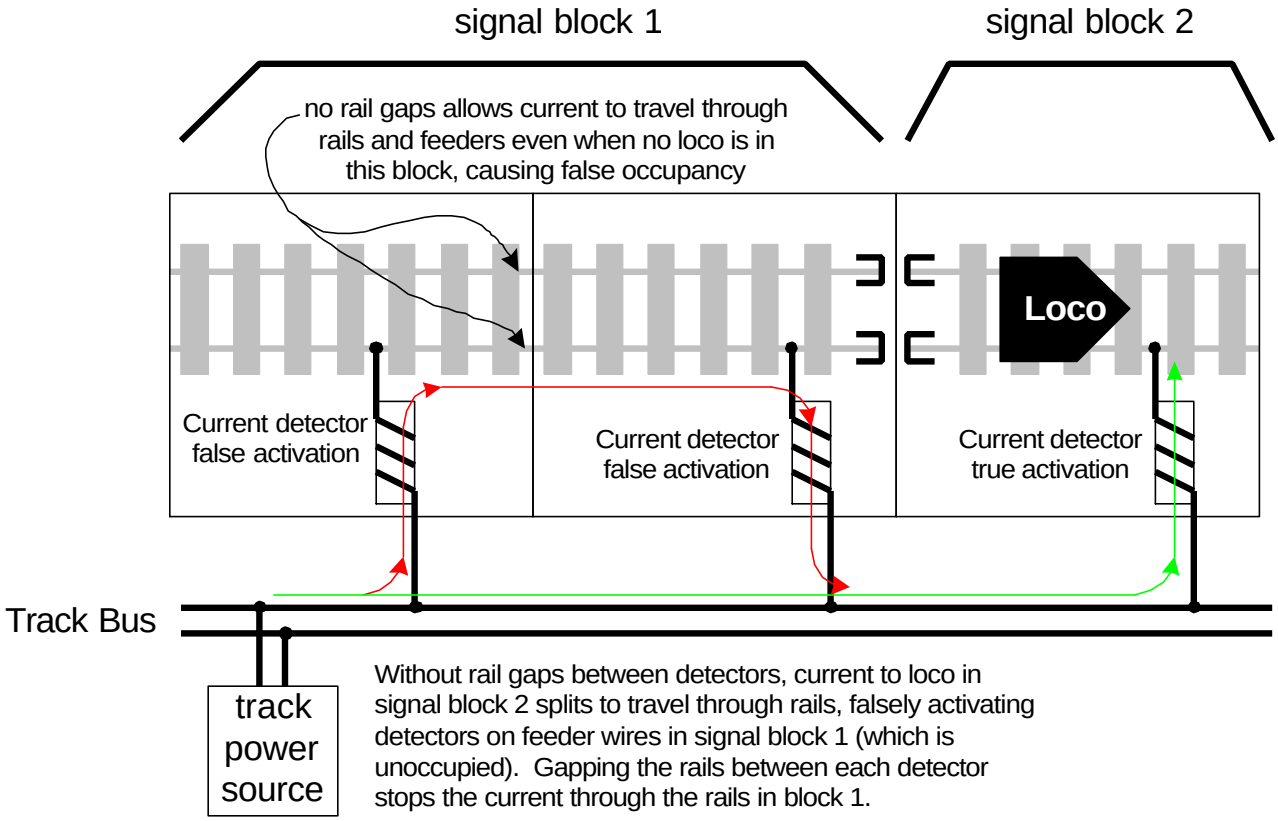
2403 Champa Street
Denver, CO 80205

1) How do you wire a passing siding?
   a. Because sidings and other non-mainline tracks are not detected for occupancy, their feeder wires tap off the Free-mo track bus directly to the rails - do not run them through current detectors. This implies side tracks need their own feeders, and cannot "share" feeders with mainline tracks. Also, isolate both rails of side tracks from the mainline rails to stop unwanted current flowing through the rails – this ensures trains on side tracks do not cause mainline current detectors to activate. Isolating both rails ensures each track's current flows only through the wires feeding it.
2) Is this part of the Free-mo standard?
   a. The Occupancy Bus developed by NorCalF and SLO-Mo is NOT a required bus for Free-mo ... it is just a modular way to add ABS signaling to a modular layout without a lot of muss and fuss (i.e. no computer programming, no integration with DCC system, etc.).
3) Why must both rails be gapped between each current detector, even within a signal block?
   a. The gaps ensure all current flows only through the track bus, and not the rails, from the track power source (e.g. DCC booster) to a train occupying a distant block. This prevents false activation of current detectors on signal blocks between the power source and the occupied block. Consider the following sketch:



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4) The "rules" say cascades must be separated by an odd number of cross-overs – how is this met when two cascade modules are mated adjacent in a setup?
    a. The cross-over jumper cable that connects the two cascade modules acts as a single cross-over, which meets the "odd number" rule.
5) The article states the DCCOD from JLC is costlier than the BD20 from NCE – but JLC's website lists the DCCOD at $5, which is less than the BD20 – why?
    a. The JLC site is selling only the bare printed circuit boards – no components (sorry for the confusion – I did not realize this before the article was published). However their site refers to another outfit "EASEE Interfaces" that offers built-up units and kits – see the last paragraph on this web page: http://www.jlcenterprises.net/Order.htm (mid-2005 inquiry found the built-up DCCOD costs $25).
6) Is there an American distributor of the Heathcote IRDOT-1D optical detector board?
    a. Not that I know of – I ordered mine direct from the UK through the Heathcote web site, after sending them an inquiry asking what their price is in US dollars. However, MicroMark (http://www.micromark.com/) is now selling the Heathcote IRDOT-1 which is very similar. This version does not have the 4-second off-delay that is built into the IRDOT-1D version. But it is possible to add this delay feature to the IRDOT-1; this process is documented in a separate file on this site.
7) All the figures in the article show the signals at a block boundary facing each other - the signal heads point in the correct direction, but shouldn't their placement be swapped? For example, if you were to draw the diagram of the signals protecting a block boundary at a siding turnout, the signals would actually face away from the turnout and each other, but the wiring would stay unchanged - correct?
    a. Correct. The drawings are done that way for neatness and wiring clarity; otherwise there would be wire-lines crossing all over the place, making it that much more difficult to follow. Think of the drawings as equivalent to schematics for circuit boards - the locations of part symbols on the schematic do not represent the physical placement of components on the actual board.
8) The photo caption on page 8 describes the aspect sequence of a siding "pot" signal on your Glen Frazer module – why does it ultimately turn green even though the siding switch is lined for the main?
    a. Glen Frazer's pot signal operation is based on ATSF-specific practice, and may not be accurate for every prototype implementation of ABS. Their operation is based on discussions with ATSF engineers as well as info gleaned from this website: http://www.lundsten.dk/us_signaling/abs_atsfsiding/siding_2nddist.html
9) For a multi-section module set that is always configured the same way, how can the entire module be detected with just one current detector to reduce cost?
    a. Add a third wire called a "local track bus" through the module set, in parallel with the two standard Free-mo track bus wires. Feed the mainline detected rail from the "local" bus wire; feed the non-detected mainline rail and all side track rails from the two standard Free-mo bus wires. Then connect the "local" bus wire to the corresponding standard Free-mo bus wire **at only one point**, and install the single current detector on that connection point. The detector will then sense all current going to the mainline throughout the module (across all its sections). Consider the following sketch: