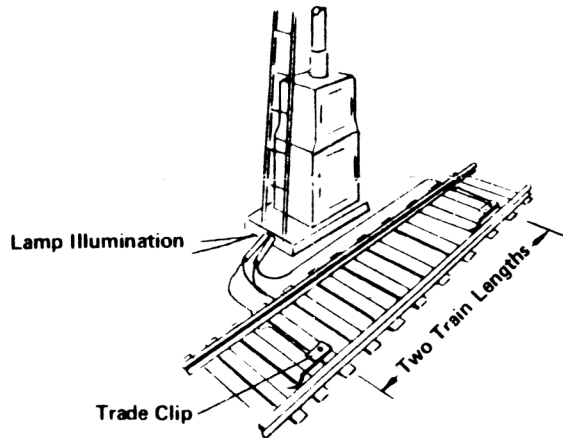# WIRING INSTRUCTIONS FOR
N.J. INTERNATIONAL SIGNALS

Your layout signalling can be accomplished by using many different methods, including switch machines with extra contacts, trigger track, or relays and track contacts.

Switch Machines - Use switch machines that provide extra contacts for signalling purposes. Diagrams below are shown for utilizing the N.J. International SW-60 switch machine. Other machines may be utilized (N.J. International SW-50, PFM, Kemtron). Instructions for their use are included with these machines.
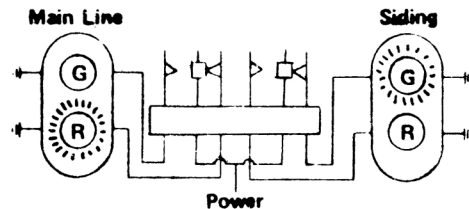
Track Contacts and Relays - See semaphore wiring instructions and comments at the bottom of this sheet.

Trigger Track - Its use and hookup instructions are contained with the track.
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Semaphore (CS-100, 101, 201, 301) - The semaphore is activated by the use of two N.J. International TC-40 track clips as shown. The distance between track clips should be at least two train lengths. The semaphore signal should be positioned midway between the track clips. The signal has six wires, the two thin wires are for bulb illuminations and should be connected directly to a power source, as the lamp is always lit to show red or green indication depending on the position of the semaphore arm.

Lamp Illumination
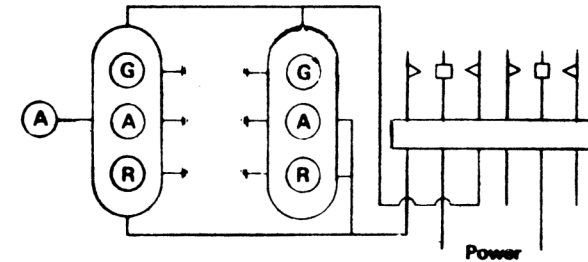
Trade Clip

Two Train Lengths

Two Light Signals (CS-102, 107, 108, 110, 208, 302, 310) - A common use for two signals is to show the position of switches. The signal should be placed just before a switch facing the on-coming train. If bi-directional use is intended, two signals are required; one on each side of the track facing opposite directions. The signal will show red when the switch is thrown for the siding and green when aligned for the main line. By using this method, you can tell the position of any switch in the layout by the color indication of the signal.

Main Line

Siding

Power

Three Light Signals - (CS-103, 105, 106, 111, 122, 203, 303, 305, 306, 311) Although these signals have three indicators, with switch machines, only two can actually be utilized. The red and green bulbs are wired the same as for a two-light signal, if two signals are used together and wired to the same switch machine. You can connect the green bulb on both to the same set of contacts and the amber bulb on the first signal to the red bulb on the second signal to the other set of contacts (see diagram). In this manner, the train gets an amber "cautious" signal before it reaches the red signal. This diagram reflects a hook-up using one set of contacts from our SW-60 switch machine-an additional set of contacts remains for a duplicate hook-up with two other signals, or you may use our SW-50 switch machine which has only 1 set of extra contacts.

Power

Single Target Signal (CS-120, 320) - Our single target signal has two bulbs, one green, one red in a single housing covered by a clear lense. This signal may be wired as any two light signal described elsewhere on this sheet.
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Crossing Signal (CS-109, 209, 309) - Can be made to alternately flash by using track clips and N.J. International EL-20 Flasher Unit. Instructions and diagrams are included with the EL-20 unit.
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Position Light Signals (CS-104, 204, 304) - These signals require that the center bulb be illuminated at all times. It may be connected directly to a power source. This then leaves only two bulbs to be wired for any indication desired. The three sets of two bulbs each may then be wired as a three light signal above.
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There are many and varied ways to provide signalling for your layout. What is represented here is but one simple method. Space does not permit more elaborate schemes. Many articles appear in Model Railroad magazines pertaining to signalling. In addition, there are several inexpensive books available on the subject which deal with all lines of sophistication from solid state electronics to the track clips and relay method.

We are constantly developing new items in the line of signals and other accessories. See your favorite hobby dealer to keep up with the latest from N.J. International.