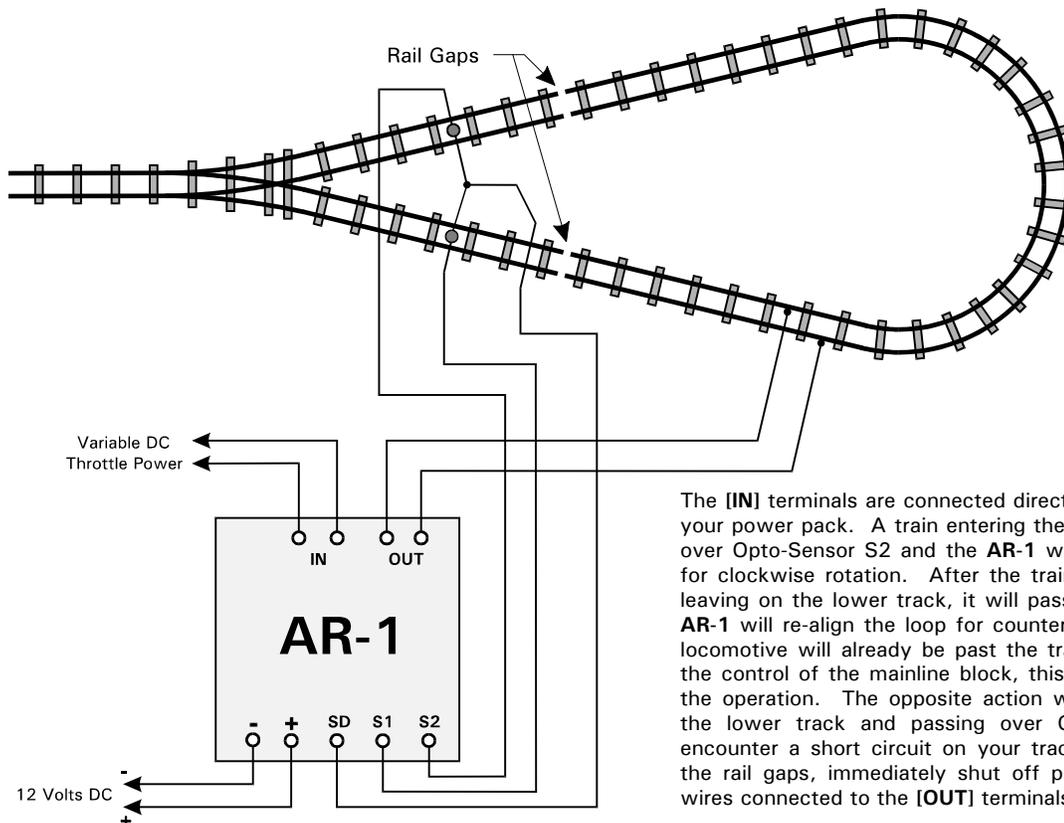


## USING THE AR-1 FOR REVERSE LOOP APPLICATIONS

Certain layout designs incorporate reverse loops where a train leaves the mainline via a turnout, traverses a loop of track, and then returns to the mainline travelling in the opposite direction. A wiring problem exists with this type of design which requires at least one set of insulated track breaks to be provided within the loop. Typically, the modeller will provide breaks both at the beginning and the end of the loop, effectively isolating the loop track from the rest of the layout wiring. Track power to the loop will then be routed through some form of double pole, double throw reversing switch so that the loop polarity can be selected without changing the mainline. This then allows entering the loop from either direction (depending on the setting of the reversing switch), and permits travelling the loop in either a clockwise or counter-clockwise direction. It is possible to fully automate the loop polarity selection process by using an **AR-1** (which has its relay prewired as a DPDT reversing switch) and following the hookup diagram below. Note that a separate **AR-1** will be required for each loop on the layout. In addition, for fully automated operation, an additional **AR-1** will be required to switch the mainline polarity (as detailed in the standard **AR-1** instruction sheet), as well as detection (**DT-4**) and turnout controls to automatically operate the switch machines.



The **[IN]** terminals are connected directly to the variable DC output on your power pack. A train entering the loop on the top track will pass over Opto-Sensor S2 and the **AR-1** will align the polarity of the loop for clockwise rotation. After the train has travelled the loop and is leaving on the lower track, it will pass over Opto-Sensor S1 and the **AR-1** will re-align the loop for counter-clockwise rotation. Since the locomotive will already be past the track rail gaps and will be under the control of the mainline block, this change will have no effect on the operation. The opposite action will occur for trains entering on the lower track and passing over Opto-Sensor S1 first. If you encounter a short circuit on your track power when a train crosses the rail gaps, immediately shut off power and interchange the two wires connected to the **[OUT]** terminals.

**Please Note:** For any specific situation, you need to examine your normal operation. If you routinely are required to throw a DPDT reversing switch one way at one point on your layout, and then throw that same DPDT switch back at another point of your operation, and if this action REPEATS every time around your layout, then it is likely that an **AR-1** can be utilized to replace the manual switch. However, not all reverse loop applications can be successfully automated with the **AR-1**. One common example is a simple loop of track with a single crossover track. In the example shown here, trains can run continuously in a clockwise direction and then crossover to run counter-clockwise continuously. There is no way for the train to return to clockwise rotation, and in this situation, an **AR-1** will not work.

