AN-6000-02

SWITCH POINT AND SIGNAL WIRING USING THE INTERNAL SWITCHES ON THE TORTOISE™ OR SMAIL™ SWITCH MACHINE

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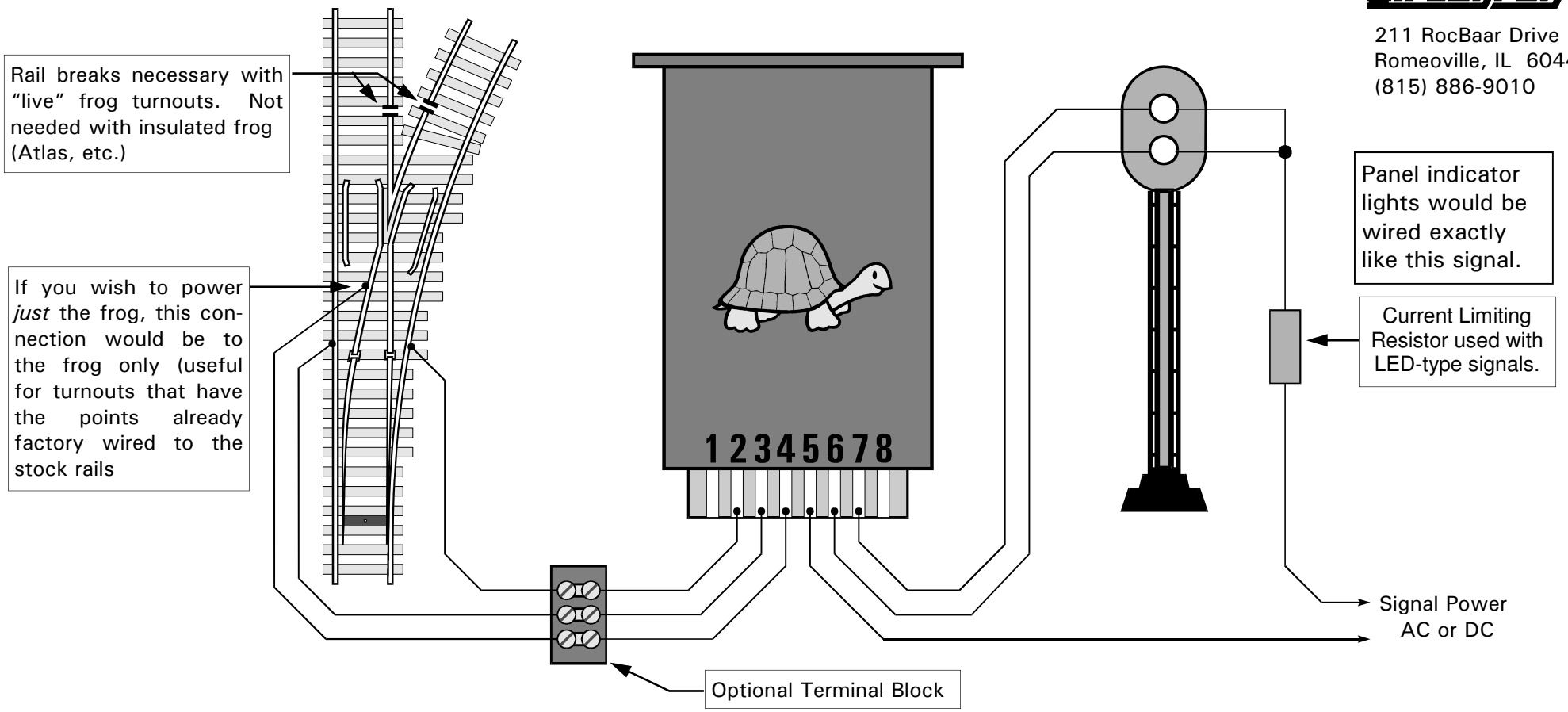

TURNOUTS: Since the polarity of the stock rails with reference to the TORTOISE™ will vary depending upon which way the TORTOISE™ is mounted, it is best to use the terminal block as shown. If a short circuit occurs in your track power circuit, immediately remove power and reverse the connections to circuit board positions 2 & 3. If all your TORTOISES™ are mounted facing the same way, you can eliminate the terminal block after you have determined the proper connections. With Shinohara™ brand turnouts, we recommend bending the small contacts protruding from the points in the vicinity of the throwbar down and out of the way so that they do not contact the stock rails. If you do not do this, a short circuit may occur if the TORTOISE™ contacts switch *before* the Shinohara™ contacts break their connection with the stock rails. With Peco™ brand turnouts, it is best to remove the stock over-center spring so that the points move freely. The TORTOISE™ spring wire will provide optimal point tension without the Peco™ spring and short circuits as described above will be eliminated.

SIGNALS & RELAYS: Since the internal TORTOISE™ switch contacts are completely isolated, they may be used for powering AC or DC circuits. The drawing above shows a typical installation of a trackside block signal. Power to the signal is provided from the layout signal supply, typically 12-16 volts AC. Note that if the signal is a Light Emitting Diode (LED) type, a DC power source *MUST* be used. In addition, the current limiting resistor in the "common" lead must also be included to prevent burnout of the signal. See the signal manufacturer's recommendations for resistor values. If the wrong lamp lights after wiring, interchange the connections to circuit board positions 6 & 7.

When heavy currents are to be switched by the TORTOISE™, we recommend driving a relay from the auxiliary contacts. The relay coil would be wired exactly like the signal and would connect to either position 6 *OR* 7, but not both. Select a relay with a coil compatible with your power supply. The current limiting resistor would not be used with the relay coil.