

## 615-4750 (10-240) Right Hand Rule Roller

**Introduction:** Electricity and magnetism are closely related. Often, the two have similar effects on each other. In many cases, such as electric motors, this relationship proves to be very useful.

In this case, electricity interacting with a magnetic field produces a motive force. As electricity flows from one rail to the other via the roller, a magnetic field is generated around the roller. The magnet below the rails interacts with this, producing a Lorentz Force, which is an electromotive force closely related to Faraday's law of induction. This force produces enough power to move the roller along the rails, even uphill.



The right hand rule is named after the grip position used to determine the magnetic field. Grip the roller in your right hand with your thumb pointed in the direction current flows. Your fingers will wrap around the roller in the same direction as the magnetic field.

**Operation:** To use, you will need 4 fresh AA alkaline batteries. Install these in the mounted battery holder.

Next, place a roller on the rails, midway between the ends.

The switch will change the direction current flows into the rails, which in turn changes the direction the roller moves.

You can place a thin book or similar object under one end of the unit to put the unit at an angle. The roller is capable of traveling uphill at small angles.

### **Warranty and Parts:**

We replace all defective or missing parts free of charge. Additional replacement parts may be ordered toll-free. We accept MasterCard, Visa, checks and School P.O.s. All products warranted to be free from defect for 90 days. Does not apply to accident, misuse or normal wear and tear. Intended for children 13 years of age and up. This item is not a toy. It may contain small parts that can be choking hazards. Adult supervision is required.