

Cat. No. B10-4705-W2

# Electromagnetic Force Track M1-L

## Instruction Manual

### Safety Instruction

This is an important information for your usage.

Be sure to read it carefully and thoroughly before using this product.

### Warning

- ⊗ This is not a toy. Not intended for children 12 years and younger.
- ⊗ Do not disassemble, repair and/or remodel this product.
- ⊗ **Do not bring this product close to any electronic device like PC or cellphone because the strong magnet used for this product damages those devices.**
- ⊗ Stop using this product once occurrence of an abnormal or malfunction state is found. Please contact at [global@rika.com](mailto:global@rika.com) regarding any problem.
- ! How to operate this product must be explained to students by teacher (instructor) prior to the experiment.

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### Caution

- ⊗ Use this product only under the direction of teacher (instructor).
- ⊗ Prohibition of use out of purpose. The purpose of the equipment is an experiment of electromagnetism in school level of science education.
- ⊗ Don't give any shock to the product by dropping it from desk, etc because the magnet may break.
- ! Check the condition of the product before and after long-term storage and stop using it once occurrence of an abnormal state is found.
- ! **Pay attention to iron fixtures and fittings around you whenever you need to bring this product because it might be attracted by those iron items, which may lead to unexpected accident.**

## Introduction

### Intended purpose of this product

This product can carry out experimentation of electromagnetic force.

- When current flows through the aluminum pipe (metallic conductor), force is generated because of the current and the magnetic field that causes rotational transfer of the pipe and you can realize how electromagnetic force is applied to the pipe in accordance with the Fleming's left-hand rule.

- By reversing the product (upper surface of the magnet,  $N \leftrightarrow S$ ), you can realize different result of the experiment to be caused by changing the flow direction of electromagnetic field.



## Specification

Size: 320 x 27 x 10 mm

[Main Body]

- Ferrite Magnet: 300 x 23 x 8 mm
- Rail (SUS304): 320 x 10 x 1 mm (x2)

[Accessory]

- Aluminum Pipe:  $\phi 6$  x 50 mm

## How to use

- ① Place the product on horizontal surface excluding table/desk made of steel.
- ② Put the aluminum pipe across the rails and check if the pipe doesn't move on the rails.
- ③ Connect edges of the rails with Genecon (Narika's hand-held generator) or with power supply and send DC current of 3~6V to the rails. You will see the aluminum pipe rolling over in accordance with the Fleming's left-hand rule.
- ④ You will see the direction of the pipe rolling over the rails changes every time you change the direction of the current flow and/or change the upper surface of the magnet.

(Note) Be sure to polish the surface of the pipe and rails by using alcohol when you find the poor contact between the pipe and rails due to stain on the surface.