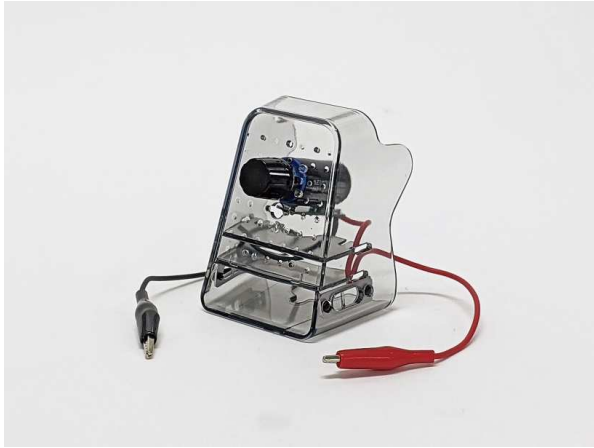


B10-4025-W0

# Multi-turn Potentiometer

Pacco-PM



## [Product Description]

In-line type multi-turn potentiometer equipped with a built-in variable resistor mounted on a transparent plastic body (a rotary type potentiometer). Achieved easier connection with an electric circuit compared to conventional sliding/wire-wound type resistors.

## [Overall Advantages to Users]

- ✓ Connectable to electric parts/components in a circuit in two ways thanks to its body structure which is equipped with mechanisms shown below that significantly increase students' efficiency in completing circuits successfully.
- ✓ Built-in leads with clips (red & black): the potentiometer can be easily connected to terminals of other products.
- ✓ Built-in terminals on both sides of the body: leads with clips (red & black) of other electric parts/components can be easily connected to the potentiometer.

## [Caution]

Make sure no electric power larger than 2W (or electric voltage larger than 4.5V) flows into the potentiometer to prevent overheating.

## [Specifications]

- Maximum input voltage: 4.5V
- Resistance Range: 10 ~ 110Ω.
- Resistance Tolerance:  $\pm 5\%$ .
- Angle of Rotation:  $3600 \pm 20^\circ$
- Voltage Rating: 160V
- Torque: 3.5 ~ 100mN.m.
- Power Rating: 2W

## [Benefit]

### [To teachers]

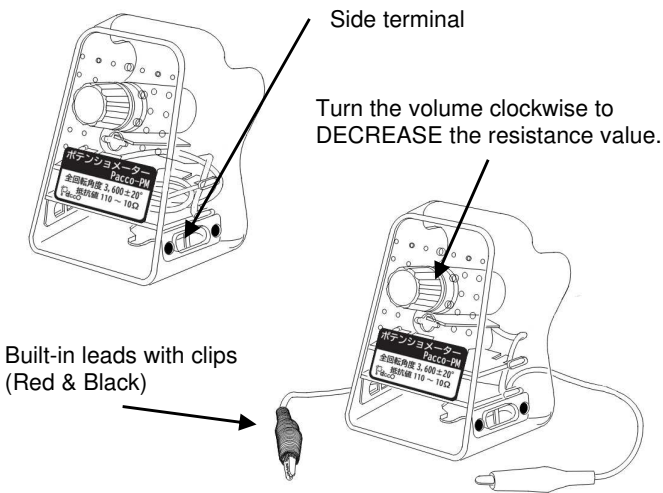
- ✓ Shorter time required for preparation and experiment compared with a conventional sliding resistor because the potentiometer can be directly connected into an electric circuit.
- ✓ Potentiometer helps students understand difficult concepts derived from Ohm's law like an electromotive force and internal resistance of a battery.

### [To students]

- ✓ Easy to find the relationship between resistance, voltage, and current in a circuit summed up in Ohm's law.
- ✓ Easy to complete an electric circuit by using the potentiometer thanks to its compact and lightweight body compared with a sliding resistor.
- ✓ Designed to increase efficiency in completing circuits for a student by intuitively and correctly selecting one of the two optional mechanisms.

## [Keywords]

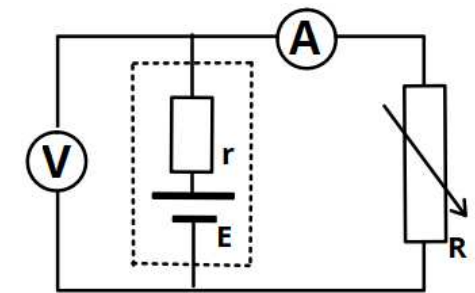
Variable resistor, Ohm's law, Electromotive force and Internal resistance of battery, Simple electric circuit



## [Example of Experiment]

### [Internal resistance of battery]

1. Complete an electric circuit with an ammeter, a voltmeter, two batteries, and the potentiometer as shown in the drawing below.
2. Measure and record how the voltage value varies when gradually increasing the current at an interval of 0.05A up to 0.30A by turning the volume of the potentiometer.
3. Plot totally six measured voltage values in a graph, where x-axis is the current value and y-axis is the voltage value, to draw a straight line through the plotted points and read the voltage value at the y-intercept that theoretically represents the voltage value when no current flows through the circuit, i.e. the electromotive force of batteries.
4. Calculate the gradient of the graph to know the internal resistance of each of the two batteries.



Narika recommended meters for measurement:  
A05-7060 DC Ammeter "CRABEE" CT-A  
A05-7065 DC Voltmeter "CRABEE" CT-V