

Primary/Secondary Coils

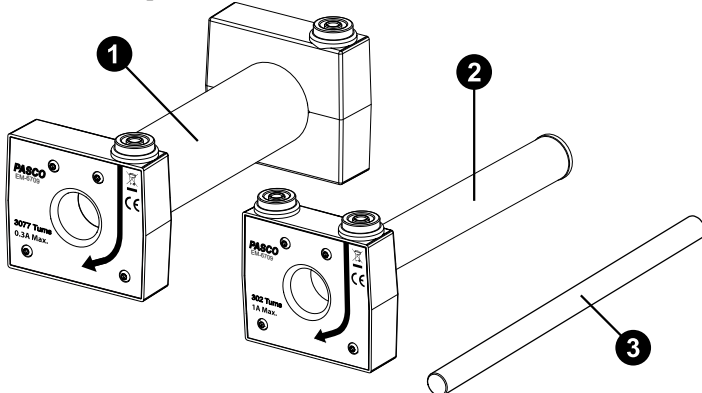
EM-6709

Introduction

The Primary/Secondary Coils are used to investigate induction and transformer principles. When connected to a source of alternating voltage, the inner coil can be used to induce a voltage in the outer coil. The induced voltage can then be measured using a voltage sensor. The arrow on the label of each coil indicates the direction in which the wire is wound.

Components

Included components:



- ❶ Inner coil (302 turns; 10.4 mm inner diameter; 12.3 cm length; 0.8 Ω approximate resistance)
- ❷ Outer coil (3077 turns; 18.1 mm inner diameter; 11.0 cm length; 40 Ω approximate resistance)
- ❸ Iron core (9.5 mm diameter; 16.5 cm length)

Required equipment:

- AC power supply, such as the signal generator built into the 850 Universal Interface (UI-5000)
- Voltage sensor, such as the Wireless Voltage Sensor (PS-3211A)

Basic usage

The instructions below allow you to use the Primary/Secondary Coils as a step-up transformer. This is a typical usage of the product.

1. Insert the inner coil into the outer coil, then insert the iron core into the inner coil, as shown in Figure 1.
2. Connect the positive end of the power source to the terminal nearest to the arrow on the inner coil. Connect the negative end to the opposite terminal.
3. Connect the high voltage lead of the voltage sensor to the terminal closest to the label on the outer coil. Connect the ground lead of the sensor to the opposite terminal.
4. Begin driving the inner coil with a sinusoidal voltage. Use the voltage sensor to measure the induced voltage in the outer coil.

⚠ **IMPORTANT:** Do NOT allow the current through the inner coil to exceed a maximum of 1 A.

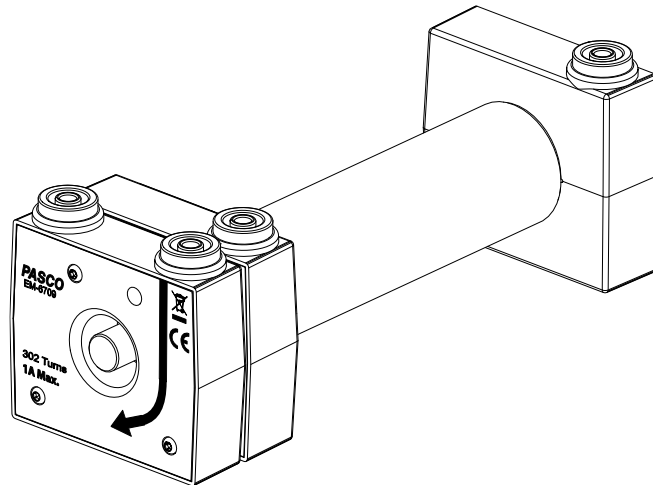


Figure 1: Outer coil with the inner coil and iron core inserted.

Specifications and accessories

Visit the product page at [pasco.com/product/EM-6709](https://www.pasco.com/product/EM-6709) to view the specifications and explore accessories. You can also download experiment files and support documents from the product page.

Experiment files

Download one of several student-ready activities from the PASCO Experiment Library. Experiments include student handouts and teacher notes. Visit [pasco.com/freelabs/EM-6709](https://www.pasco.com/freelabs/EM-6709).

Technical support

Need more help? Our knowledgeable and friendly Technical Support staff is ready to answer your questions or walk you through any issues.

- ☐ Chat [pasco.com](https://www.pasco.com)
- ☎ Phone 1-800-772-8700 x1004 (USA)
+1 916 462 8384 (outside USA)
- ✉ Email support@pasco.com

Limited warranty

For a description of the product warranty, see the Warranty and Returns page at www.pasco.com/legal.

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Product end-of-life disposal



This electronic product is subject to disposal and recycling regulations that vary by country and region. It is your responsibility to recycle your electronic equipment per your local environmental laws and regulations to ensure that it will be recycled in a manner that protects human health and the environment. To find out where you can drop off your waste equipment for recycling, please contact your local waste recycle or disposal service, or the place where you purchased the product. The European Union WEEE (Waste Electronic and Electrical Equipment) symbol on the product or its packaging indicates that this product must not be disposed of in a standard waste container.

CE statement

This device has been tested and found to comply with the essential requirements and other relevant provisions of the applicable EU Directives.