

Electrostatics Voltage Source

ES-9077

Introduction

The Electrostatics Voltage Source is a high voltage, low current power supply designed exclusively for experiments in electrostatics. It has outputs at 30 V DC for use in capacitor plate experiments, as well as fixed 1 kV, 2 kV, and 3 kV outputs for Faraday ice pail and conducting sphere experiments. With the exception of the 30 V output, all of the voltage outputs have an associated series resistance that limits the available short-circuit output current to about 8.3 microamps. The 30 V output is regulated but is only capable of delivering about 1 milliamp before falling out of regulation.

Equipment included



- Electrostatics Voltage Source (ES-9077)
- Red banana plug-to-spade lug cable
- Black banana plug-to-spade lug cable
- 9 V DC power supply

Operation

CAUTION: To prevent the risk of electric shock, **do NOT** remove the cover on the unit. There are no user-serviceable parts inside. See **Repairs** for more details.

When using the Electrostatics Voltage Source to power other electric circuits (like RC networks), use only the 30 V output. Remember that the maximum drain is 1 mA.

Use the special high-voltage leads included with the Electrostatics Voltage Source to make connections. Using other leads may allow significant leakage from the leads to ground, which can negatively affect output voltage accuracy.

The high voltage outputs are designed to charge objects in various electrostatics experiments. These objects will typically present an essentially infinite input resistance. Trying to drive other types of load may significantly load the high voltage outputs and cause the output voltage to drop.

Repairs

There are no user-serviceable parts inside the Electrostatics Voltage Source. If the device requires repair, we strongly recommend returning it to PASCO rather than attempting to repair it yourself. See the Warranty and Returns policy at [pasco.com/p/warranty-and-returns](https://www.pasco.com/p/warranty-and-returns) for more information about the return process.

Maintenance

The Electrostatics Voltage Source does not require routine maintenance. The outputs are factory adjusted to be accurate within $\pm 10\%$. The outputs cannot be checked accurately using a standard multimeter or digital multimeter, as the input resistance of these meters is low compared to that of the Electrostatics Voltage Source's high voltage outputs. The outputs may be checked if a high voltage probe, such as a Fluke 80K-40 HV Probe, is available to connect to a digital multimeter. However, this reading will still measure slightly low. The actual voltage may be calculated using the knowledge that the device's output resistance is 120 kilohms per volt (for example, the 1000 V output has a series resistance of 120 megaohms) and that the resistance of the high voltage probe is 1000 megaohms.

Specifications and accessories

Visit the product page at [pasco.com/product/ES-9077](https://www.pasco.com/product/ES-9077) 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 editable student handouts and teacher notes. Visit [pasco.com/freelabs/ES-9077](https://www.pasco.com/freelabs/ES-9077).

Technical support

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

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

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.

FCC statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.