

# e/m Tube (SE-9659)

## Introduction

This tube is a replacement for the Electron Charge-to-Mass Ratio Apparatus (SE-9629). **Read these instructions carefully, as the setup procedure is NOT the same as the one found in the manual for older e/m tubes, or in older versions of the full apparatus manual!**

To download the updated manual for the full apparatus, go to [pasco.com/product/se-9629](https://www.pasco.com/product/se-9629) and click the **Documents** tab.

## Setup

This e/m tube has a different start-up procedure than previous models, such as the Replacement e/m Tube (SE-9651A). Please read these new instructions before using the new tube.

1. On the Tunable DC (Constant Voltage) Power Supply II, set the Voltage Range Switch to 0 - 200 V.
2. For both power supplies, push in the Power Switch to the ON position.
3. Allow the filament to heat up for about 5 minutes.
4. On the Tunable DC (Constant Voltage) Power Supply II, set the Accelerating Voltage to 190 V DC to make the electron beam appear.
5. On the Tunable DC (Constant Current) Power Supply, increase the current to the Helmholtz coils. Watch the electron beam and check that the beam curves upward. Continue increasing the current until the electron beam forms a closed circle.
  - If the electron beam does not deflect, reverse the polarity of one of the Helmholtz coils so that current passes through both coils in the same direction.
  - If the electron beam deflects downward, swap the connections of the 3.5 A output terminals on the Power Supply.
  - If the electron beam forms a spiral, rotate the tube on the platform until a closed circle is formed. You may also need to rotate the platform to the right or left to align the magnetic field generated by the Helmholtz coils with the magnetic field of Earth.

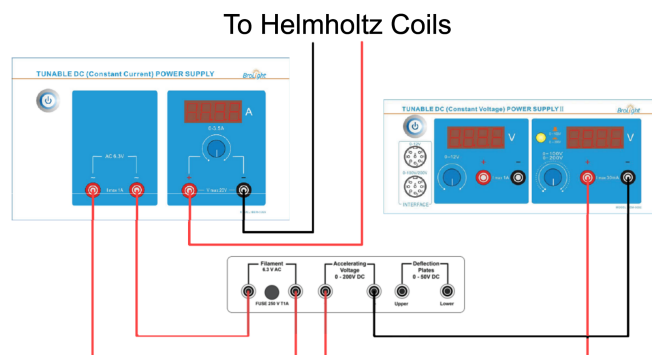


Figure 1. The full wiring diagram for establishing the electron beam.

## 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)
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