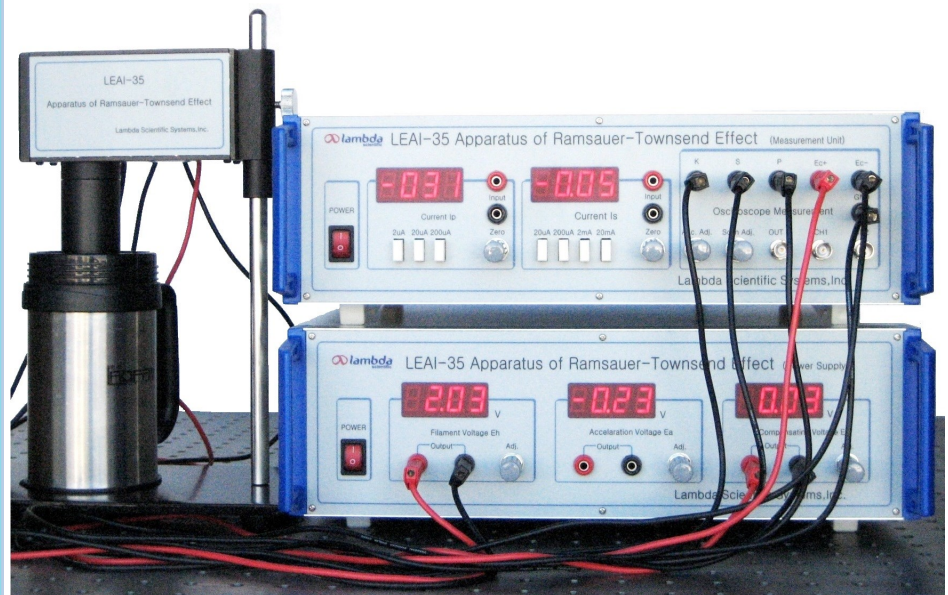


LEAI-35 Apparatus of Ramsauer-Townsend Effect



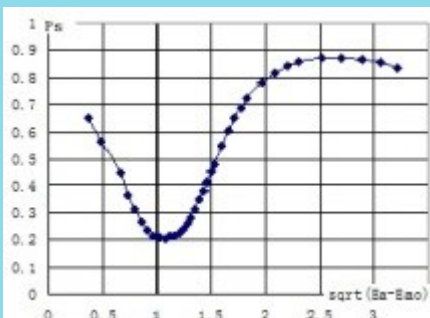
- *Easy to use, compact structure, and stable performance*
- *Ample experimental examples*
- *Affordable*

In 1912, German physicist C. Ramsauer discovered the collision cross section of an electron with gas atoms is related to the speed of the electron. When the electron energy is relatively high, the scattering section of an Argon atom increases with a decrease in electron energy. But when the electron energy is less than a dozen eV, the scattering section decreases rapidly with a decrease in electron energy. In 1922, British physicist J. Townsend found a similar phenomenon. In classical theory, scattering section is independent of the speed of an electron, while Ramsauer and Townsend's experimental results indicate an opposite theory, which can only be explained by quantum mechanics.

This Ramsauer-Townsend effect experimental apparatus can measure IS-VA and IP-VA curves, and determine the relationship between scattering probability and electron speed.

Experiment contents include:

1. Understand the collision rule of electrons with atoms and learn to measure atomic scattering cross section.
2. Measure scattering probability versus electron speed of low-energy electrons collided with gas atoms.
3. Calculate the effective elastic scattering cross section of gas atoms.
4. Determine the electron energy of the minimum scattering probability or scattering cross section.
5. Verify the Ramsauer-Townsend effect, and explain it with the theory of quantum mechanics.

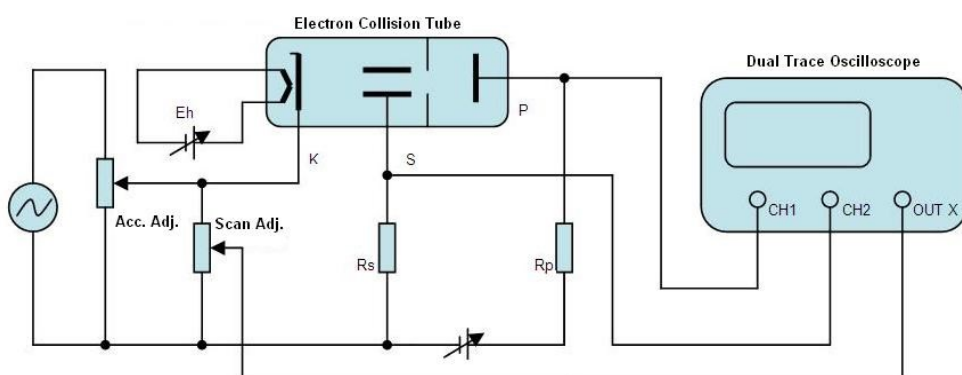


Specifications

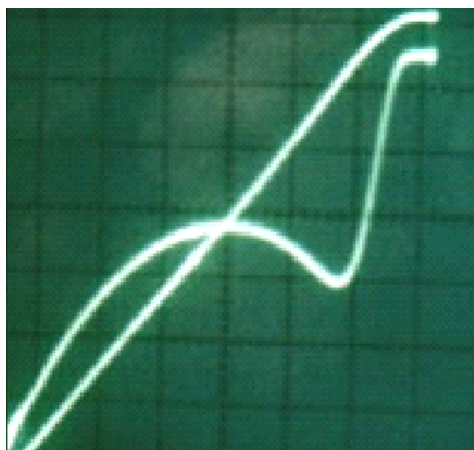
Voltage supplies	filament voltage	0 ~ 5 V adjustable
	accelerating voltage	0 ~ 15 V adjustable
	compensating voltage	0 ~ 5 V adjustable
Micro current meters	transmissive current	3 scales: 2 μ A, 20 μ A, 200 μ A, 3-1/2 digits
	scattering current	4 scales: 20 μ A, 200 μ A, 2 mA, 20 mA
Electron collision tube	Xe gas	
AC oscilloscope observation	effective value of acceleration voltage: 0 V - 10 V adjustable	

Part List

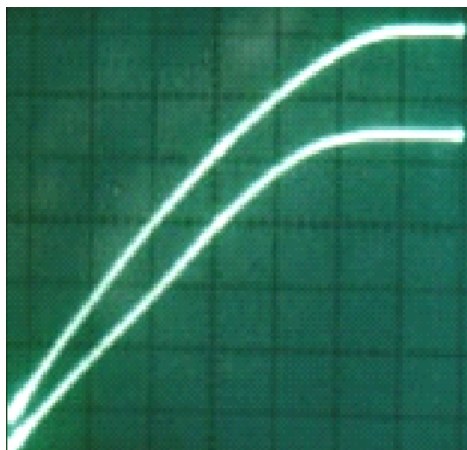
Power Supply Unit	1
Measurement Unit	1
Electron Collision Tube	2
Support Base and Stand	1
Vacuum Flask	1
Connection Wires	14
Instruction Manual	1



Schematic diagram of AC measurement



Curve under room temperature



Curve under low temperature

Note: above product information is subject to change without notice.