

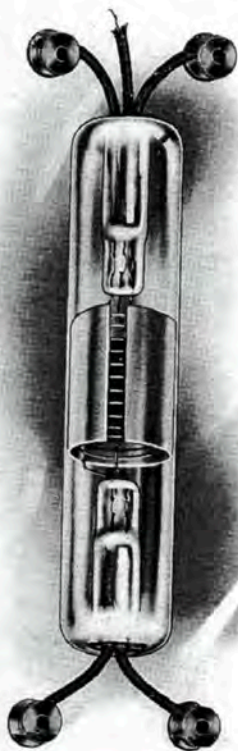
— THE —

# ELECTRON AUDIO

## DETECTOR AMPLIFIER OSCILLATOR

---

---



The Electron Audio Detector is a vacuum type bulb, depending upon the use of a pure electron discharge from an incandescent tungsten filament. It differs from the Audion and valve detectors, in that gas ionization action plays no part in this bulb.

Every precaution is taken during manufacture to remove the slightest traces of gas or water vapor. Pumps capable of producing the highest known vacuum, supplemented by chemical absorbers or getters are used in its manufacture. Occluded gases on the glass walls, the filaments, the grid and wing, are entirely eliminated, by applying excessive heat externally during exhaus-

FOR SALE BY

**RADIO APPARATUS COMPANY**  
**BROAD AND CHERRY STREET**  
**PHILADELPHIA, PA**

tion. The oxide on the aluminum plate is reduced to pure metal. The copper dioxide on the grid is reduced to the monoxide form. The presence of the nascent oxide and free aluminum metal within the bulb continually acts as an absorbent to any slight traces of gas which the long exhaustion of the pumps may fail to entirely remove. Thus our pure electron discharge bulb is not only entirely freed from all gas initially remaining in the bulb, but is so constructed that any occluded gas given up by the filament during its life is absorbed by the aluminum plate or copper grid, thereby maintaining the high vacuum during life. This exceptional freedom from gas allows the free movement of a maximum number of electrons across the grid wing space.

Bulbs containing gas do not depend upon a pure electron discharge from the filament, but upon the ionization of the critical amount of gas remaining within the bulb by the heat of the filament. If gas is present within the bulb, the positive ions present will prevent the emission of negative electrons from the filament, hence it is essential that the slightest residue of gas be removed.

The aluminum plate or wing is in intimate contact with the inner glass wall of the tube, resulting in a maintained low temperature of the wing. The grid is located between the plate and the filament, completely surrounding it, thereby taking full advantage of the electrons emitted in all directions from the filament. This is a radical constructional improvement over any other vacuum bulb.

The filaments are of drawn tungsten and are located within the grid, extending from end to end of the bulb. This straight line filament, having no loops or bends, is entirely free from destructive discharges across the ends of looped filaments, commonly referred to as local Edison effects. The absence of these destructive forces is one of the reasons of the exceptional long life of the bulb.

The Electron Audio Bulb can be supplied for use as a detector amplifier or oscillator. The process of manufacture is slightly different and for this reason we are listing three types

of bulbs. Bulbs can be supplied with one or two filaments. The Electron Bulb can be used in any circuit for either damped or undamped wave reception or amplification.

A high voltage battery (15 to 30 volts) generally made up of flashlight cells, and a 4 to 6 volt filament battery are required. Complete diagrams and directions for use accompany every bulb shipped.

## **GUARANTEE**

Every bulb sold carries the following guarantee:

If this detector is not found satisfactory for any reason whatsoever, return same to us within ten days from receipt thereof and we will either send a new bulb or refund full purchase price, as you may desire.

Every bulb is packed separately in a cardboard carton bearing the label: "Manufactured by the Electron Mfg. Co., Berkeley, Cal." Bulbs without this label are not genuine.

## **PRICES**

Supsensitive detectors or amplifiers.....	\$6.50 <sup>5</sup> 5.-
Supsensitive oscillators for undamped wave reception.....	6.50
Combination bulbs of detectors and oscillators....	7.50

The above prices are for double filament bulbs. We can also supply single filament bulbs at \$1.00 less in all three grades. All bulbs are shipped postpaid and are insured to arrive in good condition.

## **TERMS**

Strictly C. O. D. with five days' examination trial privilege if desired. Or if cash accompanies order 5 per cent discount may be deducted.

## READ WHAT A FEW USERS OF THE ELECTRON AUDIO DETECTOR WRITE US

---

COLORADO SPRINGS, Nov. 18, 1915.

"The Electron Audio Oscillator arrived today in perfect condition. It is certainly all you claim it to be. I am enclosing herewith check for five more bulbs, which please forward at once."

---

NEW YORK, Dec. 16, 1915.

"The two bulbs recently shipped me are very sensitive. The detector and amplifier is more sensitive than any X grade \* \* \* bulb we have ever tested. The Oscillator Bulb is far more sensitive than the new double grid double wing bulb of the \* \* \* Company. This bulb will oscillate from 200 meter to 10,000."

---

SEATTLE, WASH., Jan. 4, 1916.

"I cannot say too much in praise of your Electron Audio Detector and Oscillator. I have been able to read OUI (Germany) at noon. Signals coming in loud enough enough to be copied on my typewriter. Key West, Atlantic City, Arlington, Darien, and the Japanese and Siberian coastal stations are heard nightly. I have been able to use your bulb as a transmitting oscillator by connecting a telephone transmitter in the ground circuit; in this way I have been able to send over a mile. Enclosed please find check for ten more bulbs, which I have already placed among a number of friends who have witnessed the results I have obtained with your bulb."

---

CHICAGO, ILL., Feb. 3, 1916.

"Your Electron Combination Audio Detector and Oscillator is certainly far ahead of anything I have ever used. Especially my former double grid X grade \* \* \* Bulb, which I had thought the most sensitive detector in existence. Prior to the receipt of your bulb, I would not have taken \$50.00 for this \* \* \* Bulb. After using the Electron Audio Bulb, I would gladly sell it for \$5.00."