

TYPE 635-B ELECTRON OSCILLOGRAPH



The TYPE 635-B Electron Oscillograph is presented in an effort to reduce the cathode-ray oscillograph to its lowest terms in simplicity of operation and price. Like the TYPE 687-A Electron Oscillograph and Bedell Sweep Circuit, the instrument is a complete portable unit, but it does not include a sweep circuit.

The smaller instrument makes use of a 3-inch tube. Tube mounting and power-supply unit are combined in one case. Access to the tube may be obtained by removing four thumb screws. Terminals for the deflecting plates are brought out to the panel, as is a focusing control. The anode voltage remains fixed at 1000 volts.

SPECIFICATIONS

Tube: All tube specifications are the manufacturers' latest published data.

Spot Intensity: A so-called fast-screen tube (TYPE 635-P3) will be furnished unless otherwise specified. This type of screen is recommended for photography and is essential when rapid transients are involved. The figures (right) show the relative photographic brilliancy of the two types. Length of trace, sweep frequency, shutter speed, and emulsion are identical for each trace.

Voltage Sensitivity: Approximately 75 volts per inch for horizontal deflecting plates and 100 volts per inch for the vertical deflecting plates.

Frequency Characteristics: Because the leads from the deflecting plates are not brought out separately but are brought out together through the base of the tube, inter-action between these circuits results at high radio frequencies, causing an error in amplitude and phase. The actual resonant frequency of either deflecting plate circuit is in the neighborhood of 45 megacycles.

TYPE 635-P2 Slow-Screen Tube



TYPE 635-P3 Fast-Screen Tube



f/22 f/16 f/11 f/8 f/5.6 f/4.5
Lens Aperture

WAVEFORM

Maximum Spot Speed: With TYPE 635-P2, 4100 inches per second; with TYPE 635-P3, 11,000 inches per second.*

Screen Diameter: 3 inches.

Impedance of Deflecting Plates: Capacitance is 35 μf to 45 μf between panel terminals.

Tubes Supplied: One General Radio TYPE 143-D and one General Radio TYPE 635-P3.

Power Supply: All of the voltages necessary are obtained from the self-contained power supply operating from the 115-volt, 40-60 cycle, a-c line. *Anode Voltage*, fixed at 1000 volts. *Focusing Voltage*, adjustable between 0 and 300 volts either positive or negative by reversing connections. *Cathode-leak*

supply, maximum of 2.5 volts or 2.2 amperes, ac. Adjusted by means of a rheostat inside the cabinet. Supplied complete with ON-OFF switch and 7-foot attachment cord.

Terminals: Jack-top binding posts, mounted on the panel of the oscillograph as shown in the illustration.

Power Consumption: 25 watts.

Mounting: The instrument is mounted in a walnut case with carrying handle. There is an opening for the tube screen at one end of the case. The control panel is situated at the side.

Dimensions: (Height) 13½ x (width) 16 x (depth) 6¼ inches, over-all.

Net Weight: 19¼ pounds, including tubes.

Type	Code Word	Price
635-B	CUPID	

*These values are maximum workable spot speeds S for Verichrome film, on the basis of a hypothetical aperture $f/1.0$ and with the screen at infinite distance from the lens. The maximum speed S' for any other aperture f/N and a ratio k between length of trace on screen and on the camera plate is:

$$S' = \frac{S}{N^2 \left(\frac{1+k}{k} \right)^2}$$

REPLACEMENT TUBES

Type	Description	Code Word	Price
635-P2	Slow-Screen Tube	CUMIN	
635-P3	Fast-Screen Tube	CUDDY	
143-D	Rectifier Tube	FAIRY	

OSCILLOGRAPH AMPLIFIER (TYPE 714-A)

See page 68 for specifications

In many applications it is found desirable to increase the voltage under observation before applying it to the deflecting plates of an electron oscillograph. The amplifier used for this purpose must be of high input impedance and excellent frequency characteristic if the advantages of the electron type of oscillograph are not to be sacrificed.

The TYPE 714-A Amplifier has been designed for use with the TYPES 687-A and 635-B Electron Oscillographs.

- Sensitivity of combination, 100 inches per volt
- Range, 5 cycles to 50 kilocycles