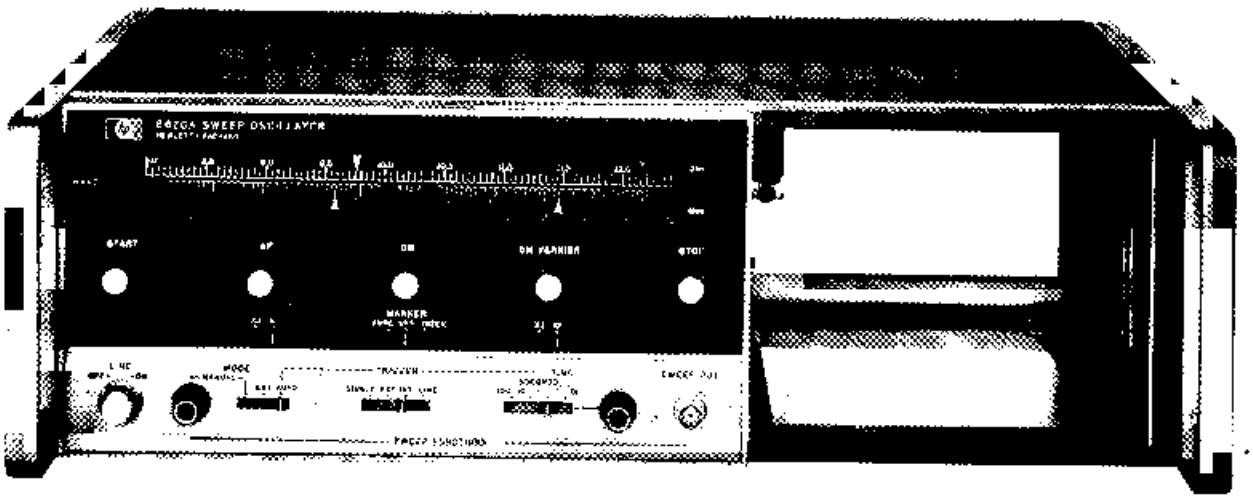
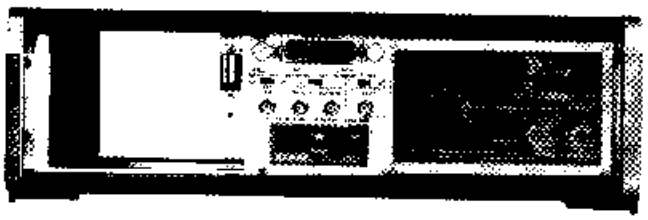
SWEEP OSCILLATORS

8620 Family: mainframe

Model 8620A

- Full programming capability
- Convenient, flexible operation





The 8620A offers many features as standard equipment. For example, up to four separate bands and their respective frequency scales can be selected with a touch of the band select lever just to the left of the dial scale. This represents a truly convenient wide-band capacity, one which doesn't necessitate changing plug-ins or the addition of costly, bulky, additional instruments to make wide-band swept measurements. Pushbuttons, concentrically located in the frequency control knobs, light when actuated to indicate the sweep function in use. As such, they also indicate the frequency controls to be utilized in setting frequencies. For example, the wideband START/STOP function is selected by actuating either the START or STOP button in its respective frequency control knob. Both knobs light to indicate both controls are in use.

The 8620 is fully and continuously calibrated for any ΔF sweep width. Having chosen an optimum width, one can read the total sweep width from the calibrated ΔF dial scale. Two continuously variable ΔF ranges are available by using the range switch below the ΔF knob. This allows calibrated sweep widths of up to 1% or 10% of full band at the users choice.

The CW function is selected by depressing the CW knob. It is possible to also engage the CW vernier knob to achieve very accurate setability. With the main dial scale cursor placed on any convenient mark, it is possible to accurately interpolate between dial scale markers by utilizing the CW vernier. This vernier makes the effective length of the dial scale >20 inches and contributes to the increased setability.

Another feature is the capability to fully program the sweeper. The standard 8620A includes programming inputs for band selection, attenuator setting (with 8621B Opt 010 installed), sweep function selection, and analog frequency programming. Option 001 provides, in addition, 1000-point digital frequency programming.

8620A Specifications

Frequency

Frequency range: Determined by band switching lever and RF unit.
Frequency linearity: Refer to RF unit specifications.

Sweep functions

START-STOP sweep: Sweeps from START to STOP frequency setting. Selected by depressing either START or STOP frequency buttons on the front panel.

Range: Both independent settings are fully calibrated and continuously adjustable over the entire frequency range; can be set to sweep either up or down in frequency.

End-point accuracy: Refer to RF unit specifications, same as frequency accuracy.

ΔF Sweep: Sweeps symmetrically upward in frequency, centered on CW setting. CW vernier can be activated for fine control of center frequency.

Width: Continuously adjustable from zero to 10% or zero to 1% of usable frequency band as selected with front panel switch. Dial scale calibrated directly in MHz.

Width accuracy: ±1% of maximum ΔF plus ±2% of ΔF being swept.

Center-frequency Accuracy: Refer to RF unit specifications, same as frequency accuracy.

CW operations: Single-frequency RF output controlled by CW knob selected by depressing pushbutton in CW/MARKER control.

Preset frequencies: START-STOP sweep end points in manual sweep mode and CW frequency can be used as preset CW frequencies.

CW vernier: Calibrated directly in MHz about CW setting. CW vernier activated by pushbutton in CW vernier control. Zero to ±0.5% or zero to ±5% of full bandwidth, selectable with front panel switch.

Accuracy: Refer to RF unit specifications, same as frequency accuracy.

Frequency marker: The constant width frequency marker is fully calibrated and independently adjustable over the entire range and set with the CW/MARKER control. Front panel switch provides for the selection of either amplitude or intensity markers (amplitude modulating the RF output or Z-axis modulating the CRT display).

Resolution: Better than 0.25% of RF unit bandwidth.

Marker output: Rectangular pulse, typically −5 volts peak available from Z-axis BNC connector on rear panel. Source impedance, approximately 1000 ohms.

Accuracy: Refer to RF unit specifications, same as frequency accuracy.

Sweep modes

Auto: Sweep recurs automatically.
Line: Sweep can be synchronized with the ac power line.
External trigger: Sweep is actuated by external trigger signal >+2 volts peak, >0.5 μs pulse width and <1.0 MHz repetition rate.
Sweep time: Continuously adjustable in four decade ranges typically 0.01 to 100 seconds.
Single sweep: Activated by front panel switch.
Manual sweep: Front panel control provides continuous manual adjustment of frequency between end frequencies set in any of the above sweep functions.
External sweep: Sweep is controlled by external signal applied to programming connector. Zero volts for start of sweep increasing linearly to approximately +6 volts for end of sweep.
Sweep output: Direct-coupled sawtooth, zero to approximately +10 volts, at front panel BNC connector, concurrent with swept RF output. Zero at start of sweep, approximately +10 volts at end of sweep regardless of sweep width or direction. In CW mode, dc output is proportional to frequency. Source impedance, approximately 10,000 ohms.

Modulation

Internal AM: Square-wave modulation continuously adjustable from 950 to 1050 Hz on all sweep times. On/Off ratio, refer to RF unit specifications.
External AM: Refer to RF unit specifications.
External FM: Refer to RF unit specifications.
Phase-lock: Refer to RF unit specifications.

Remote programming

Remote band select: Frequency range can be controlled remotely by three binary contact closure lines available at programming connector.
Remote attenuation select: 0 to 70 dB attenuation in 10 dB steps can be controlled by 4 binary contact closure lines when used with 8621B Option 010.
Remote frequency programming: See option 001 below.

Remote frequency programming, option 001

Functions:

Enable: Remote/Manual, One-line Binary.
Frequency: 1000 points, 12-line BCD.
Sweep function: Automatically in CW mode during remote programming.
Logic: TTL compatible.

General

Blanking:

RF: With blanking switch enabled, RF automatically turns off during retrace, and remains off until start of next sweep. On automatic sweeps, RF is on long enough before sweep starts to stabilize external circuits and equipment whose response is compatible with the selected sweep rate.

Display (Z-axis/MKR/Pen Lift Output): Direct-coupled rectangular pulse approximately +5.0 volts coincident in time with RF blanking is on rear panel.

Negative (Negative blanking output): Direct-coupled rectangular pulse approximately −5.0 volts coincident in time with RF blanking, fully compatible with 8410A/B network analyzer.

Pen lift: For use with X-Y recorders having positive power supplies. Transistor-switch signal is available on Z-axis/ MKR/Pen lift connector. This signal is also available on the programming connector.

Furnished: 229 cm (7½-foot) power cable with NEMA plug, rack-mounting kit; 2 spare 3 amp fuses; extender board for servicing; and calibration scale.
Power: 115 or 230 volts ±10%, 50 to 400 Hz. Approximately 140 watts.
Weight (not including RF unit): Net, 11.1 kg (24 lb). Shipping, 13.4 kg (30 lb).
Dimensions: 425 mm wide, 132.6 mm high, 337 mm deep (16¾" × 5²⁄₃₂" × 13¼").

Model number and name	Price
8620A sweep oscillator mainframe	$1750
Option 001, Remote frequency programming	$515