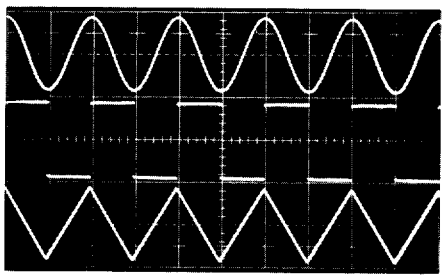
Sweep/Function Generator



- **0.1 Hz to 2 MHz Frequency Range**
- **DC Offset With Calibrated Zero**
- **Internal 1000:1 Sweep**
- **Full 10 Volt Peak-To-Peak Output Into 50Ω**
- **TTL Pulse Output**

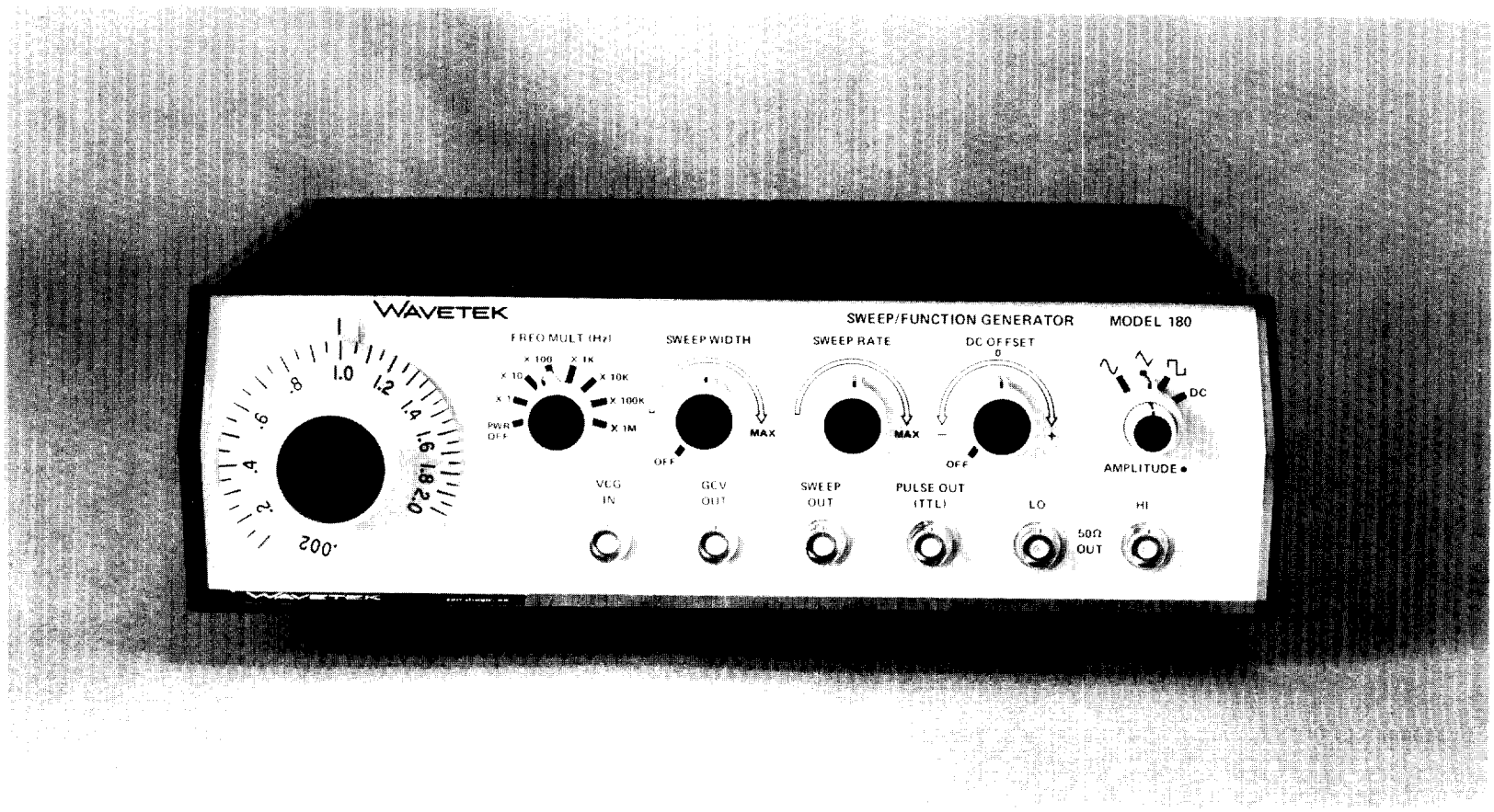
0.1 Hz to 2 MHz Frequency Range
The Model 180 covers the most popular test frequencies, 0.1 Hz to 2 MHz, in seven overlapping ranges. The 1000:1 frequency span eliminates the need for frequent range changes.

DC Offset With Calibrated Zero
The convenient front panel dc offset control lets you easily raise or lower the output waveform with respect to normal signal ground. And, so you don't have to use an oscilloscope every time you want a balanced waveform, the 180 generator gives you a calibrated zero dc offset position.

Internal 1000:1 Sweep
In addition to the main output generator, the Model 180 has an internal ramp generator for frequency sweeping. The frequency may be swept over a 1000:1 ratio so that, for example you can cover the entire audio band from 20 Hz to 20 kHz in one sweep. In addition, you can also control the frequency with an external voltage input. This allows you to use the generator as a dc programmed source or as an FM source.

Full 20 Volt Peak-To-Peak Output
For added performance, the 180 function generator has been given a full 20 volt peak-to-peak output (10V p-p into a 50Ω load). This high power output ensures that you can drive your low impedance circuits without saturating or distorting the generator signal, yet the low level output gives you clean adjustable signals to well below 50 mV.

TTL Pulse Output
For digital circuit applications, we have included a TTL pulse output on the Model 180. This pulse is fully TTL compatible and its frequency is the same as the generator output. It can drive up to 20 TTL loads.



VERSATILITY

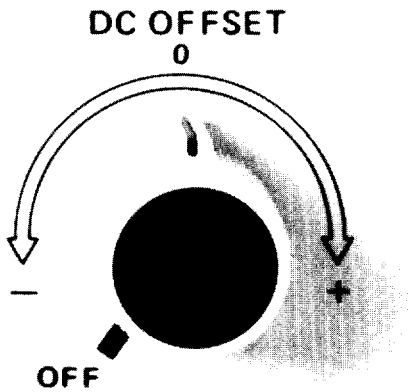
Waveforms
Sine ∿, square ⊓, triangle △, TTL pulse ⎍, ramp ◿ and dc.

Operational Modes
Continuous: Generator oscillates continuously at selected frequency.
Sweep: Recurring low-to-high frequency oscillation. Range and rate selectable.

Frequency Range
0.1 Hz to 2 MHz in 7 overlapping decade ranges. Model 180LF option, 0.01 Hz to 200 kHz.

Main Output
∿, ⊓ and △ selectable and variable, thru HI and LO BNC outputs. HI output 20V p-p max (10V p-p max into 50Ω load); 30 dB variable. LO output 1V p-p max into 50Ω load; 30 dB variable. Output impedance 50Ω.

DC Offset and DC Output
Waveform offset and dc output selectable and variable thru HI and LO BNC outputs.
HI output ±10V max (±5V into 50Ω load) as offset or Vdc output. LO output ±0.5V max into 50Ω load as offset or Vdc output. DC offset and output are attenuated proportionately by the attenuator.

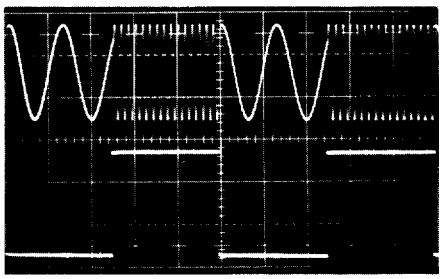


DC Offset With Calibrated Zero

TTL Pulse Output
TTL pulse (50% duty cycle) at generator frequency. Drives up to 20 TTL loads.

GCV — Generator Control Voltage
0 to +2V, open circuit output. Proportional to frequency of main generator; 600Ω impedance. For use as a horizontal drive signal.

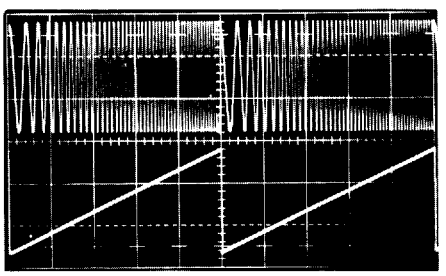
VCG — Voltage Controlled Generator
Up to 1000:1 frequency change on all ranges except ×1 Hz and ×10 Hz with external 0 to ±2V signal. Upper frequency is limited to maximum of selected range.
Slew Rate: 0.1V per μs.
Input Impedance: 2 kΩ.



VCG Input (lower) and Generator Output

Sweep
Sweep Time: 30 ms to 20s (nominal).
Sweep Width: Up to 1000:1 on all ranges except ×1 Hz and ×10 Hz.

Sweep Output
5V peak (open circuit) ramp; 600Ω output impedance.



Main Output (upper) and Sweep Output

FREQUENCY PRECISION

Dial Accuracy
±3% of full scale.

Time Symmetry
±1% thru 200 kHz.

AMPLITUDE PRECISION

Amplitude Change With Frequency
Sine variation less than:
±0.1 dB on all ranges thru × 100K.
±0.5 dB on ×1M range.

WAVEFORM CHARACTERISTICS

Sine Distortion (Continuous Mode)
Less than:
0.5% on ×100, ×1K, ×10K ranges (typically 0.2%).
1.0% on ×1, ×10, ×100K ranges (typically 0.5%).
All harmonics 30 dB down on ×1M range.

Triangle Linearity
Greater than 99% to 200 kHz.

Square Wave Rise and Fall Time
Less than 75 ns terminated into 50Ω load.

GENERAL

Environmental
Specifications apply at 25°C ±5°C. Instrument will operate from 0°C to +50°C.

Dimensions
28.6 cm (11¼ in.) wide; 8.9 cm (3½ in.) high; 26.7 cm (10½ in.) deep.

Weight
2.7 kg (6 lb) net; 4.5 kg (10 lb) shipping.

Power
100 to 125V or 200 to 250V, 50 to 400 Hz; less than 18 watts.

NOTE: All specifications apply for frequency dial between 0.1 and 2.0; amplitude at 10V p-p from HI output into 50Ω load.

PRICE (FOB San Diego)

Model 180	**$290**
Model 180LF	**$345**