

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

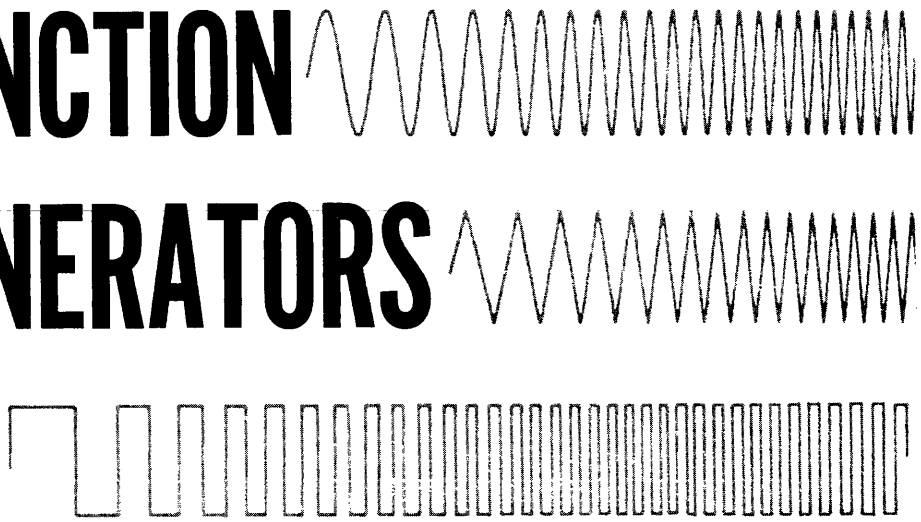
- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

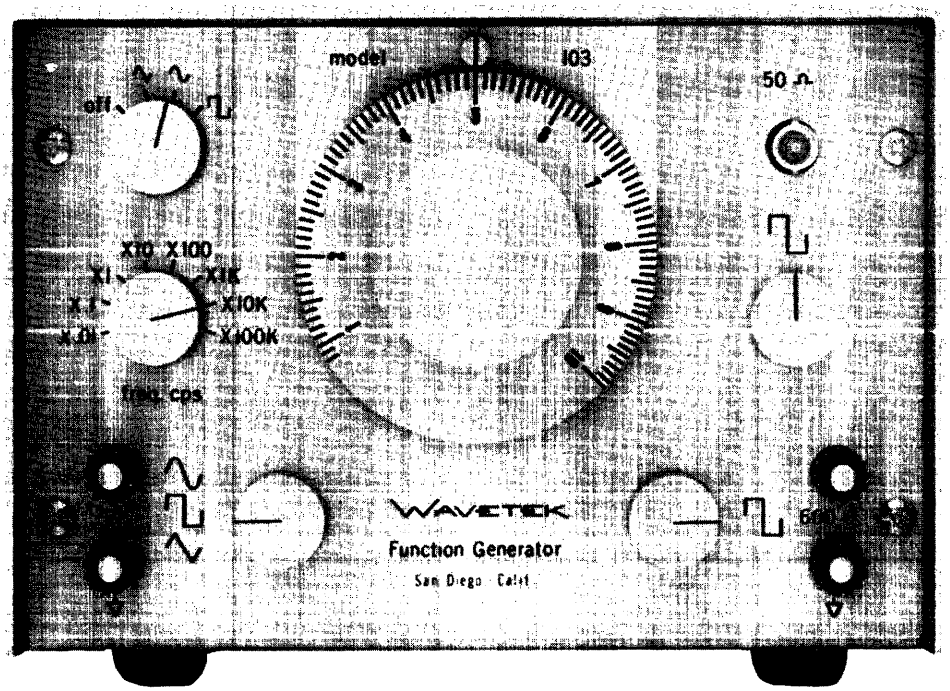
All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

FUNCTION GENERATORS BY WAVETEK



SOPHISTICATED LITTL



MULTI-PURPOSE
FUNCTION GENERATORS

Here's a HANDFUL OF VERSATILITY — three units in one compact case. Function generator . . . oscillator . . . square wave generator. Rugged modular construction, completely solid state, excellent frequency and amplitude stability. Sine wave, square wave, triangle wave — Sophisticated performance for bench or rack mounting with power supply options.

0.008 CPS TO 1 MC

All WAVETEK models feature extremely broad frequency range; clean waveform; flat frequency response; 5 nanosecond rise time and a high frequency triangle wave heretofore unavailable. All WAVETEK models make ideal sources of test signals from servo to video frequencies.

SPECIFICATIONS

Frequency Range: 0.008 cps to 1 mc.

Waveforms: Square, triangle & sine wave. Symmetrical about ground.

Square Wave Distortion: Tilt less than 0.1%. Overshoot and ringing less than 1% for harmonics below 10 mc and less than 5% for harmonics above 10 mc.

Triangle Distortion: Less than 1% for harmonics less than 1 mc.

Sine Distortion: Less than 1% to 10 kc; less than 2% to 100 kc.

Trigger Input: Upon receipt of + or — 5V external trigger (specify), one cycle is generated. If trigger is a long gate pulse, numerous cycles (the length of the gate), will be generated.

Output A: 1 volt p-p, 50 ohms output impedance. Rise and fall time less than 5 nanoseconds independent of frequency.

Output B: ⊓ 10 volts p-p 1%, 600 ohms output impedance. Rise and fall time less than 15 nanoseconds, independent of frequency.

Output C: ∿ 5 volts p-p, 5 ohms output impedance. Current limited to 5 ma.

Output D: ∿ 2 volts rms, or ∿ 5 volts p-p, 5 ohms output impedance current limited to 5 ma.

Output E: ⊓ , ∿ or ∿ . Maximum output 30 volts p-p into 600 ohms load, 50 ohm output impedance, short circuit current ± 100 ma.

Size and Weight: 7¾" W, 5¼" H, 7½" D. Approximately 8 pounds.

POWER SUPPLIES

Option AC: 115 or 230 VAC, 50-400 cps less than 5 watts.

Option R: Nickel cadmium batteries with internal charger. Simultaneous operation and charge. 8 hours operation on batteries between charges. 115 or 230 VAC, 50-400 cps, less than 10 watts.

MODEL		101	102	103	106	107
Outputs Incl.		A,B,C	A,B,D	A,B,E	A,D	A,E
Trigger		No	No	No	Yes	Yes
* Power Option	AC	$395	$495	$595	$595	$695
	R	$475	$575	No	$675	No

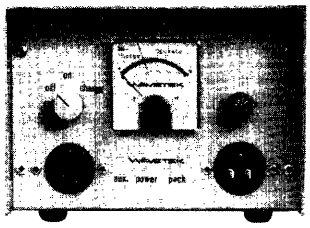
* "D" Battery versions also available.
Prices and specifications subject to change.

WAVETEK

LITHO-GRAPHICS

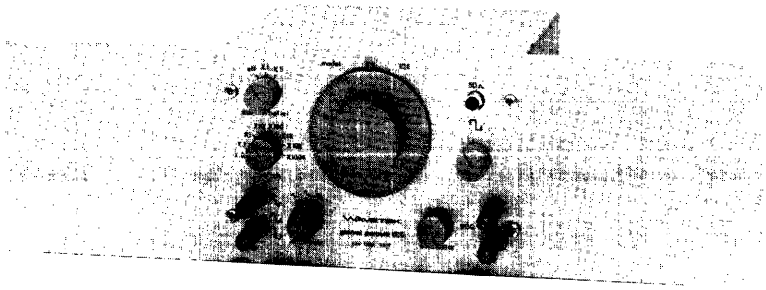
AUXILIARY POWER PACK
$595.00

For use with Models 103 and 105, this unit supplies 115AC from a nickel cadmium battery supply and will operate standard AC models for 8 hours in remote locations away from power line. The Auxiliary Power Pack has a built-in charger that will recharge the batteries in 16 hours to full strength after the 8 hour use. Rear input and output connectors, portable models, $25.00 each. Not applicable to 150 series.



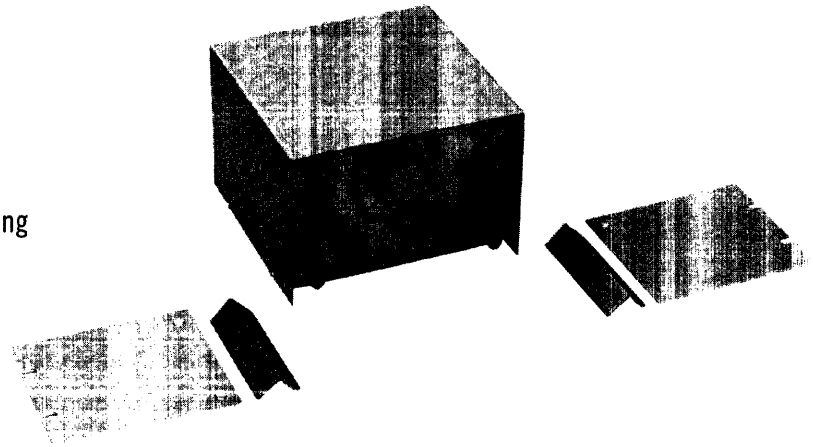
RACK MOUNT INSTRUMENTS
$50.00 extra

A 5¼" x 19" panel mounting may be ordered for any WAVETEK instrument by adding $50.00 to the basic price of the desired unit. Rear connectors are included in the Rack Mount price.



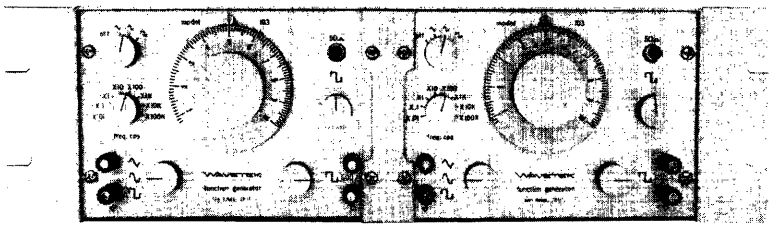
RACK ADAPTER KIT
$15.00

Angle brackets and panels for rack mounting any portable WAVETEK model.



DUAL RACK ADAPTER KIT
$30.00

Angle brackets and panels for rack mounting any two portable WAVETEK models.



FINE ZERO ADJUST CONTROL

Max. 150 mils shift

This control allows exact adjustment of DC output level to ground potential. All models.

$50.00 extra

DC OFFSET ADJUSTMENT

±5v shift

Models 103 and 105. This adjustment allows operation above and below 0V ground potential. This shift, however, limits the p/p output by the amount of offset, e.g., 5v offset limits p/p output to 10v without output amplifier clipping.

$50.00 extra

SPECIAL PAINT

Rack Mount Instruments Only

Customer furnish paint, add $15.00 to Rack Mount price . . .

$65.00 extra

WAVETEK furnish paint, add $50.00 to Rack Mount price . . .

$100.00 extra

SERVICE KIT

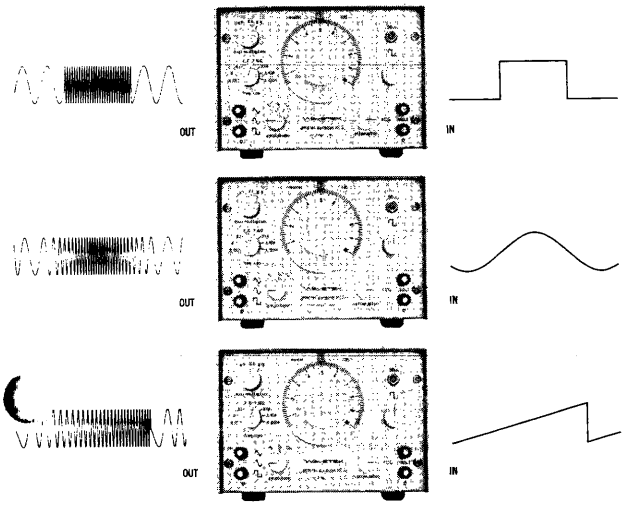
Prewired assemblies to allow operation and testing of individual PCB, separate from complete assembly.

$15.00

E GIANTS

VCG

VOLTAGE CONTROLLED GENERATOR



Here's SOMETHING UNIQUE in signal generating equipment! The WAVETEK models 104 and 105 will generate modulated ∿ , ⊓ , and ⩘ waves with any electronic modulating function you can provide . . . all from .0015 cycles to 1 mc. Did you ever want to: . . . fm a servo? . . . sweep test a low frequency filter? . . . spot check a tm channel? . . . sweep test if strips? . . . fm or sweep a triangle wave? . . . fm or sweep a square wave? . . . You can do any or all of these completely electronically with a WAVETEK model 104 or 105. Without external sweep control, it's a general-purpose generator . . . a real handful of versatility.

SPECIFICATIONS

Frequency Range: .0015 CPS to 1 megacycle
VCG Range: 20: 1 max
VCG Input Voltage: 4.75 volts total for 20:1 frequency (full dial spread)
VCG Input Impedance: 10 kΩ minimum
VCG Linearity: ± 1.0% frequency vs. input voltage

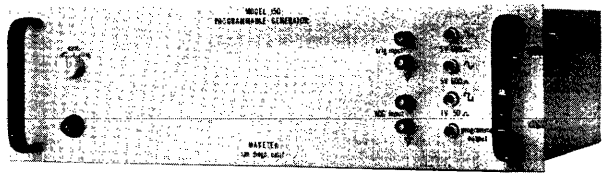
Frequency response, accuracy, stability, distortion, outputs, size & weight, same as models 102 & 103

MODEL		104	105
Outputs Incl.		A,D	A,E
Power Supply	AC	$595	$695
	R	$675	No

NEW!

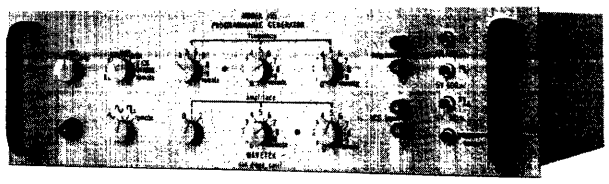
PROGRAMMABLE &

VOLTAGE CONTROLLED FUNCTION GENERATOR



MODEL 150 **$995**

Frequency Range: .01 cps to 1 megacycle in 8 ranges
VCG Frequency Range: 10:1 maximum
VCG Input Voltage: 5 volts total for 10:1 frequency range
VCG Input Impedance: 10KΩ minimum
VCG Linearity: ± 1.0% frequency vs. input voltage
Accuracy of Programmed Frequency: ±1% of frequency plus 1 digit
Outputs: Fixed amplitude simultaneous Sine, Triangle and Square
Sine and Triangle: 600Ω output impedance—5V p-p.
Square: 50Ω output—1V p-p, 5 nanoseconds rise and fall time max.
Programmed Output: 50Ω output impedance, 10 MV to 10 VPP, 3 ranges, short circuit current ±100 ma.; Square wave rise and fall time, 100 nanoseconds max. max.
Amplitude Stability: ± 1.0% long term; ± 0.1% short term
Frequency Response: ± .1 db to 100 kc; ± 1.0 db to 1 megacycle
Frequency Stability: ± 1.0% long term: ± 0.1% short term
Function Selection: Remote contact closure
Frequency Selection: Three decades contact closure: BCD Code 1248; other codes and logic levels available.
Range Selection: Remote contact closure—8 ranges
Amplitude Selection: Three contact closure: BCD Code 1248; other codes and logic levels available.
Power Required: 115 or 230 vac. ±10%, 50-400 cps approx. 15 watts.
Size and Weight: 5¼" H x 19" W, 16"D for rack or bench use; 10 pounds approximately.



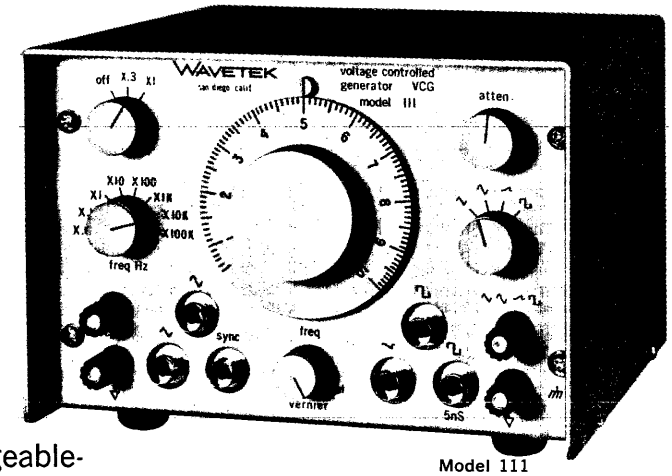
$1195

MODEL 155

ALL SPECIFICATIONS SAME AS MODEL 150 WITH LOCAL, FRONT PANEL SWITCHING IN ADDITION TO REMOTE CONTROL CAPABILITY.

Portable

Wavetek portable function generators are precision sources of test signals for operation at servo, audio and video frequencies. These versatile units produce sine, square, triangle and ramp waveforms over a frequency range of 0.0015 Hz to 1 MHz. Up to nine simultaneous outputs are available. All of the portable models may be obtained in ac- or rechargeable-battery versions.

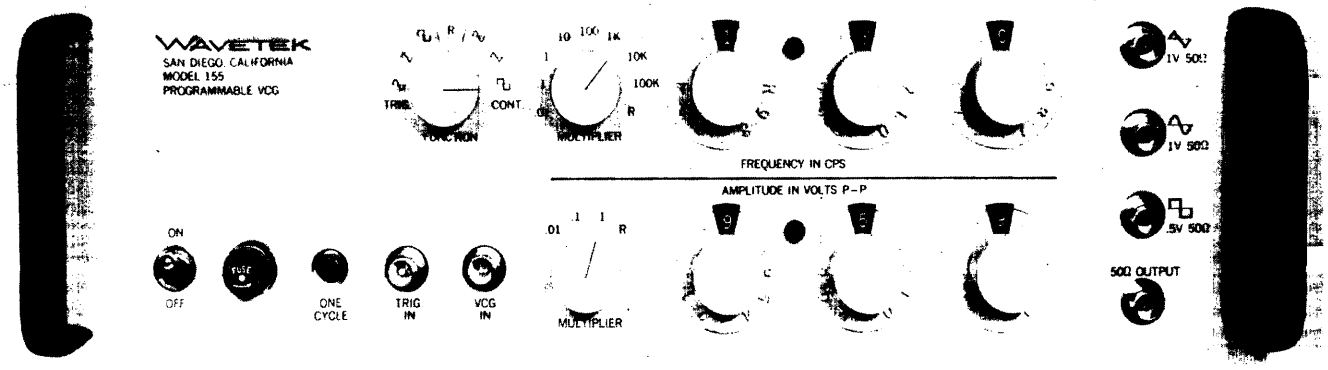


Model 111

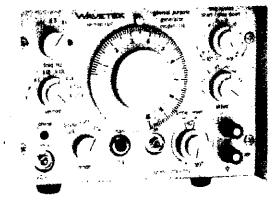
Wavetek programmable function generators offer automatic digital programming of frequency, function and amplitude. They are ideal for laboratory, systems or production applications. Output frequencies range from 0.01 Hz to 1 MHz. The instruments may be remotely controlled by contact closures or logic levels. Several different models are available featuring remote only, remote/local and completely automatic control.

Programmable

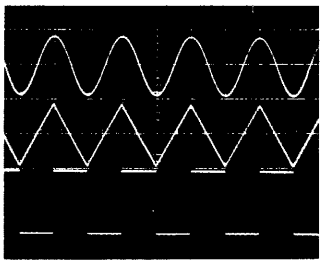
Model 155



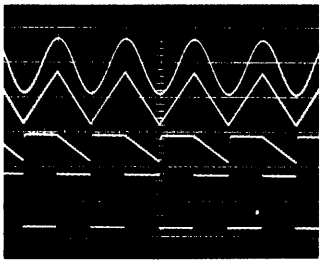
Functional Descriptions



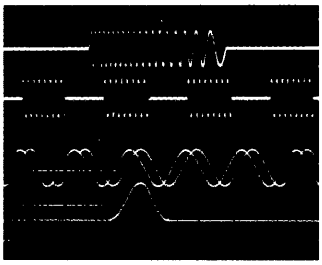
Model 116



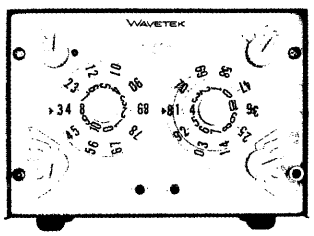
Model 110 waveforms



Model 111 waveforms



Model 116 waveforms



Model 113

Function Generator Model 110 $445

The Model 110 function generator is a calibrated, high-purity source of sine, square and triangle waveforms. It operates at servo, audio and video frequencies with six simultaneous outputs. The instrument is a portable laboratory of signal sources in one economical package.

Voltage Controlled Generator Model 111 $545

The Model 111 VCG offers remote control or modulation of frequency through an external voltage input which operates in parallel with the front panel dial. A sine wave input results in frequency modulation. A square wave input results in frequency shift keying. A ramp input allows frequency sweeping. Combination of the VCG capability with the simultaneous outputs makes it possible to generate variable-duty-cycle square waves and sawtooth waveforms.

Triggered VCG Model 112 $695

The Model 112 has the same features as the Model 111 plus the ability to trigger from a manual front-panel control or from an external pulse or gate. One cycle is generated on command. If a gate signal is applied, the generator will operate until the gate is removed. The trigger start-stop point is selectable over 360°. Trigger level and polarity may be selected from front-panel control.

Precision VCG Model 113 Available late 1966

The Model 113 is a calibrated source of signals that provides continuously variable, 4-digit resolution of frequency and amplitude. This resolution and resetability, together with the extreme linearity of the VCG, make the Model 113 an ideal instrument for applications such as narrow-band filter testing.

Sweep/Trigger VCG Model 114 $795

The Model 114 has a built-in sweep capability which allows internal or external voltage control. The unit offers both a sweep and hold mode and triggered sweep—and still operates as a standard function generator and VCG. All outputs are available, including a monitor of the sweeping voltage.

Phase-Lock/Trigger VCG Model 115 $745

The Model 115 has all the capabilities of the Model 112 with the addition of a unique phase-lock function. The generator's frequency locks to any external stimulus and can be phase-locked to the fundamental selected frequency or harmonics of that frequency. Phase-lock operates from 10 Hz to 1 MHz and is controllable over 360°.

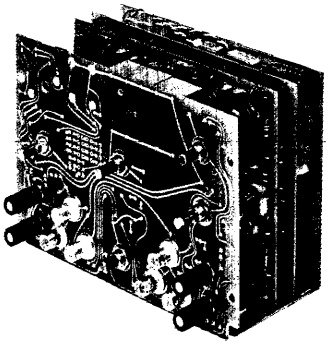
Multi-purpose Generator Model 116 $845

The Model 116 VCG features triggered, gated and phase-lock operation. Additionally, an internal cycle counter makes this single instrument capable of tone burst operation. 1, 2, 4, 8, 16, 32, 64, 128, or 256 cycles may be generated without need for an external gating generator.

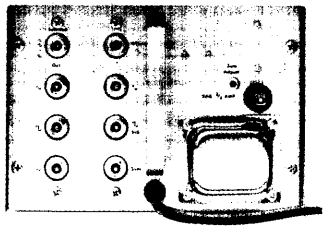
Accessories

Rack Adapter Kit $30 Dual Rack Adapter Kit $50 Rack Mount (including rear connector) Models 110-111 $75, Models 112-116 $50.

Basic Specifications



Modular plug-in construction, interchangeable circuit boards, all-silicon semiconductors.



Rear view showing simultaneous outputs.

VERSATILITY

Waveforms

Sine ∿ , square ⊓ , triangle △ , *ramp ◿ and sync pulse.

Dynamic Frequency

0.005 Hz to 1 MHz (Model 110).
0.0015 Hz to 1 MHz (Models 111-116).

Note: Dial is a high-quality composition pot, allowing true continuously variable frequency control.

Simultaneous Outputs

1. ∿ , ⊓ , △ or * ◿ selectable. 0 to 32.5v p-p at 50Ω output impedance. (600Ω output impedance available by removing one jumper wire.) 0 to 30v p-p into 600Ω load. 0 to 10v p-p into 50Ω load. Short circuit output current ±100 ma. Battery Models: 0 to 5v p-p at 600Ω output impedance.
2. 50Ω ⊓ 1v p-p, 5 nsec. rise time.
3. 50Ω ⊓ 5v p-p, 15 nsec. rise time.
4. 50Ω ∿ 5v p-p.
5. 50Ω △ 5v p-p.
6. Sync pulse: At least −10v into open circuit; less than 5 μsec. duration.

*7. 50Ω ◺ 0v to −2.5v ramp; 50% duty cycle.

**8. 500Ω ∿ 5v p-p offset +2.5v.

***9. ∿ , ⊓ , △ , or ◿ selectable; 5v p-p at 50Ω output impedance. Differential output 180° out of phase with fixed output.

Note: All outputs may be shorted without damage to instrument.

***VCG—Voltage-Controlled Generator**

Over 20:1 frequency ratio (selectable in ranges of 3:1 allowing excellent range overlap). 4.75v input for 20:1 frequency ratio (0.5v per major dial division). Input impedance 10KΩ.

***Electronic Frequency Vernier**

One turn for one minor dial division.

HORIZONTAL PRECISION

Dial accuracy

±1% of full scale 0.005 Hz to 100 KHz.
±2% of full scale 100 KHz to 1 MHz.

***VCG Linearity**

±0.1% frequency vs. input voltage (frequency error 0.1% of total deviation—best straight line method). 0.0015 Hz to 100 KHz generated frequency. From 10% to 100% of maximum dial frequency.

***VCG Bandwith**

100 KHz.

VERTICAL PRECISION

Frequency Response

Amplitude change with frequency less than 0.1 db 0.005 Hz to 100 KHz and 0.5 db 100 KHz to 1 MHz.

Symmetry

All waveforms are symmetrical about ground within ±1% of maximum p-p amplitude (external zero adjust rear-panel control provided for output #1).

PURITY

Sine Wave Distortion

Less than:
0.5% 0.005 Hz to 10 KHz.
1.0% 10 KHz to 100 KHz.
2.0% 100 KHz to 1 MHz.

Note: Induced distortion 10 Hz to 100 KHz less than 1%; 100 KHz to 1 MHz less than 2% (Models 115 and 116 in phase lock mode.)

Stability

Short term: Drift less than ±0.05% of setting for 10 min.
Long term: Drift less than ±0.25% of setting for 24 hr.

Triangle Linearity

Greater than:
99% 0.005 Hz to 100 KHz.
95% 100 KHz to 1 MHz.

***Ramp Linearity**

Greater than:
99% 0.0015 Hz to 100 KHz.
95% 100 KHz to 1 MHz.

***Ramp Fall Time**

Less than 200 nsec.

Square Wave Rise and Fall Time

1v output less than 5 nsec.
5v output less than 15 nsec.
32.5v output less than 100 nsec.

Total Aberrations:

Less than 5% (overshoot, preshoot, etc.).

Tilt:

Less than 0.5%.

ENVIRONMENTAL

Temperature

All specifications listed, except stability, are for 25°C ±5°C.
For operation from 0°C to 55°C, derate all specifications by a factor of 2.

MECHANICAL

Dimensions

Models 110-111: 7¾" w, 5¼" h, 7½" d.
Models 112-116: 7¾" w, 5¼" h, 10½" d.

Weight

Models 110-111: Less than 10 lb.
Models 112-116: Less than 15 lb.

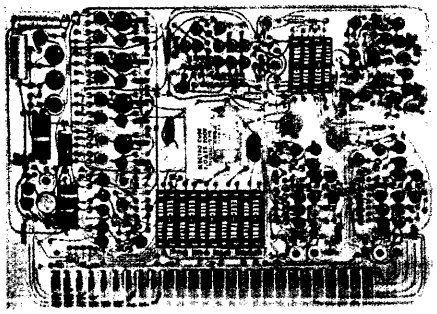
Power

AC Models: 105v to 125v or 200v to 250v, 50 Hz to 400 Hz. Less than 10 watts.

*Not applicable to Model 110.
**Not applicable to Models 110, 111, 114.
***Not applicable to Models 110, 111, 113.

Note: In Model 114, all ramp functions are replaced by offset sine wave, and Output #8 changes to 50Ω sweep monitor.

Instrument Card VCG
Model 120
1 Hz to 1 MHz



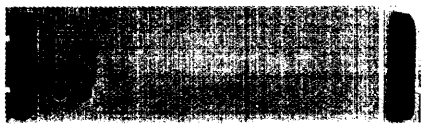
The Wavetek Model 120 is a voltage controlled function generator on a single 5 x 7 circuit card. It is designed for systems and OEM applications where space is at a premium. The Model 120 is similar to the Model 111 in performance, needing only external ±12 volt power and control inputs for operation. The unit operates at a fixed amplitude and frequency is remotely controlled at a 20:1 ratio within any one of six ranges.

Specifications

Waveforms
Sine ∿ , square ⊓ , triangle ∧

Outputs
Sine: 5v p-p.
Square: 1v p-p (5 nsec. rise time).
Triangle: 5v p-p.

Programmable Voltage Controlled Generator
Series 150
0.01 Hz to 1 MHz



Model 150

The Wavetek Series 150 programmable voltage controlled generators are all-solid-state, multi-purpose instruments that produce sine, square and triangle wave outputs. They are completely programmable using binary coded decimal (BCD) control. Frequency, function and amplitude can be remotely selected by contact closures; logic level input options are available. These units provide continuous or triggered operation and frequency control by analog voltage (VCG). Prices start at $995.

Model 150
Remote operation only.

Model 151M
Same as Model 150 but constructed in accordance with MIL-T-21200 and MIL-I-26600.

Model 155
Same as Model 150 with the addition of complete panel controls.

Model 150CP
Same as Model 150 with built-in card reader for automatic programming.

Generators
Series 500
The Series 500 generators will operate over a frequency range of 10 Hz to 10 MHz. These versatile instruments will have the capability of remote analog and digital control of frequency and amplitude.

WAVETEK®

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP