

## Model 1200A

0.2Hz to 3MHz

### Linear Sweep Function Generator

- **Waveforms:** Sine, Square, Triangle
- **Linear Sweep:** Range, 1500:1, up or down; duration adjustable 1000s to 1ms.
- **Main Output:** 20Vp-p, open circuit; simultaneous LO (-20dB) output.
- **Variable DC Offset:** ±10V.
- **External Voltage Control (VC):** 1500:1
- **Calibrated CV (Control Voltage) Output**
- **TTL Output:** 15ns rise/fall times
- **Ramp Output:** +5V peak, 0.001Hz to 1kHz



### DESCRIPTION

The Krohn-Hite Model 1200A is an economically priced function generator that features linear, up or down frequency sweeps.

The 1200A provides sine, square and triangle waveforms from 0.2Hz to 3MHz. The frequency may be manually tuned, continuously swept up or down, or externally controlled, all over a 1500:1 range on each of the three multiplier bands. An additional fine-tune vernier provides an adjustment of ±2.5% of the frequency dial setting. Internal sweep rate is continuously adjustable from 1ms to 1000s. An external voltage of zero to ±3 volts can be used to modulate the frequency about the dial setting. A CV (control voltage) output provides a +2mV to 3V DC voltage proportional to the generator frequency.

The main output amplitude is adjustable from 5mV p-p to 20Vp-p, open circuit. Our exclusive WAVEGUARD™ output protection circuit solves the problem of blown output transistors occurring in most other unprotected generators, when a voltage is inadvertently placed across the generator's output terminals. The WAVEGUARD™ circuit clamps the external voltage to ground and resets automatically when the external voltage is removed.

The output of the internal ramp generator is available at the front panel Ramp output connector. It consist of a +5V fixed linear ramp whose frequency is variable from 0.001Hz to 1kHz. The ramp may be used independent of the main generator output, in the non-sweep mode.

### ADDITIONAL FEATURES

Additional features include: variable DC offset control; auxiliary

TTL output with rise and fall time less than 15ns and capable of driving 10 TTL loads; separate HI and LO level output terminals, 0dB and 20dB, simultaneously controlled by the infinite resolution amplitude control; sinewave distortion typically 0.3% and frequency response better than 0.1dB.

We think you'll agree, the Model 1200A is ideally suited for a wide choice of applications that include engineering schools and universities, laboratory design, response testing of amplifier and filter networks, production line testing, radio repair service, plus general testing and measurement.

### SPECIFICATIONS

Specifications apply at 25°C, ±5°C at maximum output voltage, and dial set between 2 and 300, unless otherwise noted.

**WAVEFORMS:** Sine, square, triangle, TTL and ramp.

**FREQUENCY RANGE:** 0.2Hz to 3MHz.

**FREQUENCY CONTROL:** Single turn dial calibrated logarithmically from 0.2 to 300 in Hertz, and a 3 position multiplier providing a 1500:1 coverage in each multiplier position. Separate fine-tune vernier provides 5% frequency adjustment.

Band	Multiplier	Frequency Range (Hz)
1	1	0.2-300
2	100	20-30k
3	10k	2k-3M

**FREQUENCY ACCURACY:**  $\pm 5\%$  at three dial calibration settings of 10, 100 and 300;  $\pm 20\%$  maximum at other settings.

### MAIN OUTPUT

**Waveforms:** Sine, square, triangle.

#### Output:

**HI LEVEL (0dB):** 20Vp-p open circuit, 10Vp-p into 50 ohms.

**LO LEVEL (-20dB):** 2Vp-p open circuit, 1Vp-p into 50 ohms.

**Isolation:** Can be floated up to  $\pm 200V$  peak between outputs and instrument case.

#### Amplitude Stability (maximum amplitude):

**10 Minutes:** 0.02%

**24 Hours:** 0.1%

**Amplitude Control:** Infinite resolution vernier. Minimum output less than 5mV.

**Frequency Response:** Sinewave,  $<0.1\text{dB}$  from 0.2Hz to 300kHz, 1dB to 3MHz.

**Sinewave Distortion:**  $<0.5\%$  from 2Hz to 300kHz; 3% to 3MHz.

#### Squarewave:

**Rise and Fall Time:**  $<40\text{ns}$ .

**Total Aberrations:**  $<5\%$  with 50 ohm termination.

**DC Components:** All waveforms are normally symmetrical about ground with nominal zero DC volts. At maximum output, drift is  $<5\text{mV}$  per degree C.

**Triangle Linearity:**  $>99\%$  from 0.2Hz to 300kHz; 95% to 3MHz.

**Time Symmetry:** Sine, square, triangle, 99% from 2Hz to 300kHz.

**OPERATIONAL MODES:** Continuous or linear sweep.

### SWEEP CHARACTERISTICS

**Sweep Range:** Maximum 1500:1 up or down; upper and lower limits set by tuning dial and START FREQUENCY control.

**Sweep Duration:** 1000s to 1ms in two ranges, 1000s to 1s, 1s to 1ms.

**Ramp Output:** +5V peak sawtooth, period adjustable with DURATION control, 0.001Hz to 1kHz.

**Ramp Retrace:**  $<75\mu\text{s}$ .

**Output Impedance:** constant 600 ohms.

### EXTERNAL FREQUENCY CONTROL (VC)

**Range:** 1500:1

**Voltage Control Range:** Zero to  $\pm 3V$ . (A maximum of  $\pm 25V$  may be applied to the VC input without damage to the circuitry.)

**Input Impedance:** 10k ohms.

**VARIABLE DC OFFSET:**  $\pm 10V$  open circuit,  $\pm 5V$  into 50 ohms. Push-button ON/OFF control with separate vernier. (Reduced by 20dB on LO output).

**TTL OUTPUT:** TTL pulse at generator frequency, drives up to 10 TTL loads. Rise and Fall Times: 15ns.

**CONTROL VOLTAGE (CV) OUTPUT:** +2mV to +3V, proportional to generator frequency.

**Accuracy:** 5% from 20mV to 3V.

**Output Impedance:** 600 ohms.

### GENERAL

**Operating Temperature Range:**  $-10^{\circ}\text{C}$  to  $45^{\circ}\text{C}$ .

#### Controls:

**Front Panel:** Contains frequency dial, frequency vernier, amplitude, and push-button control for frequency range multiplier, main output waveform selector, sweep on, sweep range multiplier, and power switch.

**Rear Panel:** Contains line switches, symmetry adjust, and DC level adjustment.

**Terminals:** Front panel only, BNC connectors for HI and LO outputs, TTL output, VC input, RAMP output and CV output.

**Power Requirements:** Switch selectable, 90-110, 108-132, 180-220 or 216-224 volts, single phase, 50-400Hz, 13 watts.

**Dimensions and Weights:** 3.5" (9cm) high, 9" (23cm) wide, 8.5" (21.7cm) deep; Net weight 5 lbs (2.3kg), Gross weight 7 lbs (3.2kg).

**Accessories:** 3-terminal line cord; operating manual.

### OPTIONS

**Rack Mount Kit:** Part No. RK-39 permits the installation of the Model 1200A into a standard 19" rack spacing.

**Extended 1 Year Warranty:** Part No. EW1200A.

### OPTIONAL ACCESSORIES

**CAB-025:** Cable, BNC, 3ft, Low Noise

Specifications subject to change without notice.