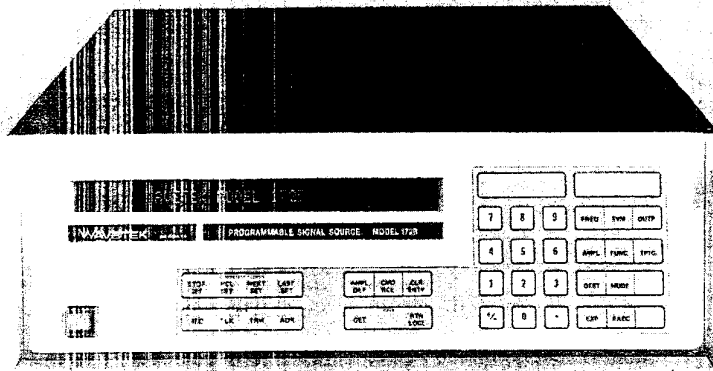


SYNTHESIZED FUNCTION GENERATORS MODEL 172B



Programmable Signal Source

- 0.0001 Hz to 13 MHz Frequency Range
- GPIB Compatibility
- 500 Settings Per Second
- 5½ Digit Synthesizer Option

VERSATILITY

Waveforms: Sine, square, triangle, pulses, ramps, haversine, havertriangle and dc.

Operational Modes: Continuous, Triggered Gated, Synthesized and Phase Lock.

Synthesizer: (Option 002.)

Phase Lock: When within 2% of the external frequency.

Frequency Range: 0.0001 Hz to 12.99 MHz.

Resolution: 3 digit standard. Also ref Option 002

Main Output: 30 Vp-p (15 Vp-p into 50Ω load) with 3 digit resolution. Composite waveform/offset to ±7.5V peak into 50Ω load.

DC Offset and DC Voltage Output: 0 to ±7.5 Vdc into 50Ω. 3 digit resolution.

Auxiliary Output: TTL pulse.

Phase Lock Input:

Input: TTL level.

Range: 10 Hz to 13 MHz.

VCG—Voltage Controlled Generator: Up to 1000:1 frequency change for sweep on FM.

Input Signal Bandwidth: 50 kHz for small signal ($\Delta V = 0.5V$).

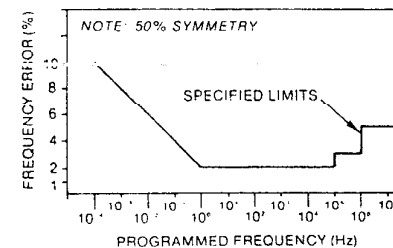
Input Impedance: 5 kΩ.

Symmetry Control: Waveform symmetry 10 to 90% in 10% steps to 999,990 Hz.

Data Entry: GPIB remote programming, optional keyboard/display (Option 001).

FREQUENCY PRECISION

Open Loop Accuracy



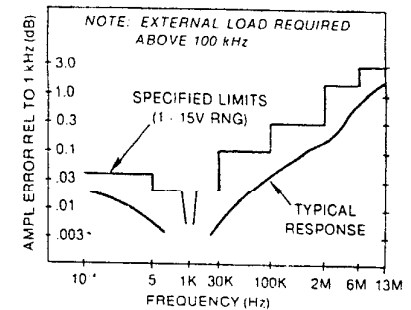
AMPLITUDE PRECISION

Accuracy: (1 kHz sine wave or DC voltage output, internal 50Ω load and 1 MΩ external impedance.) ±0.2 dB at -56 dBm; <±0.05 dB at >4 dBm.

Ampl Res: 3 digits to 9.99 V, 4 digits ≥10.00 V.

Ampl Output Conversion: Vp-p, Vrms, dBm.

Frequency Response



WAVEFORM CHARACTERISTICS

Sine Distortion: Total harmonics referenced to carrier are -46 dB to 30 kHz.

<-40 dB to 1 MHz, -30 dB to 13 MHz

Square Wave Rise and Fall Time: <20 ns (15 ns typical).

GENERAL

GPIB Programming: IEEE Standard 488-1978.

Stored Settings and Sweep: Up to 240.

Stability (Measured at 25 ±1°C)

Amplitude and DC Offset

Short Term: 0.025 dB for 15 min.

Long Term: 0.05 dB for 6 months.

Frequency

Short Term: 0.3% for 15 min.

Long Term: 1.0% for 8 hrs (to 1 MHz).

See Option 002 for synthesizer.

Environmental: Specifications apply for 25° ±10°C after 1 hr unless otherwise noted. Operates from 0° to 45°C, to 10,000 ft altitude.

Dimensions: Fits standard 48.3 cm (19 in.) rack.

43.2 cm (17 in.) wide; 13.3 cm (5¼ in.) high;

58.4 cm (23 in.) deep. Has rack mount adapters.

Weight: 26.3 kg (58 lb) net; 30.8 kg (68 lb) shipping.

Power: 90 to 110V, 105 to 125V, 180 to 220V or 210 to 250V; 48 to 67 Hz; <200 watts.

OPTIONS

001: Display and Control Front Panel. Keyboard entry, 40 character display.

002: 5½ Digit Synthesizer. Synthesizer accuracy for any waveform selected.

Frequency: 10 Hz to 12.9999 MHz.

Freq Res: 5 digits <10 MHz, 6 digits >10 MHz.

Accuracy: Better than 0.0005% of setting.

Frequency Stability

Short Term: ±1 × 10⁻⁷ of freq/day.

Long Term: ±1 × 10⁻⁶ of freq/month.

Temperature: 1.2 × 10⁻⁷ per °C.

Spurious: For spurious of 400 Hz to 110 MHz, the greater of:

< 1 MHz: -60 dB or 40 μV.

< 5 MHz: -55 dB or 40 μV.

≥ 5 MHz: -50 dB or 40 μV.

Internal Reference Output: 10 MHz TTL compatible signal.

External Reference Input: 10.0 MHz, 1 to 10 Vrms.

FACTORY/FOB

San Diego, CA