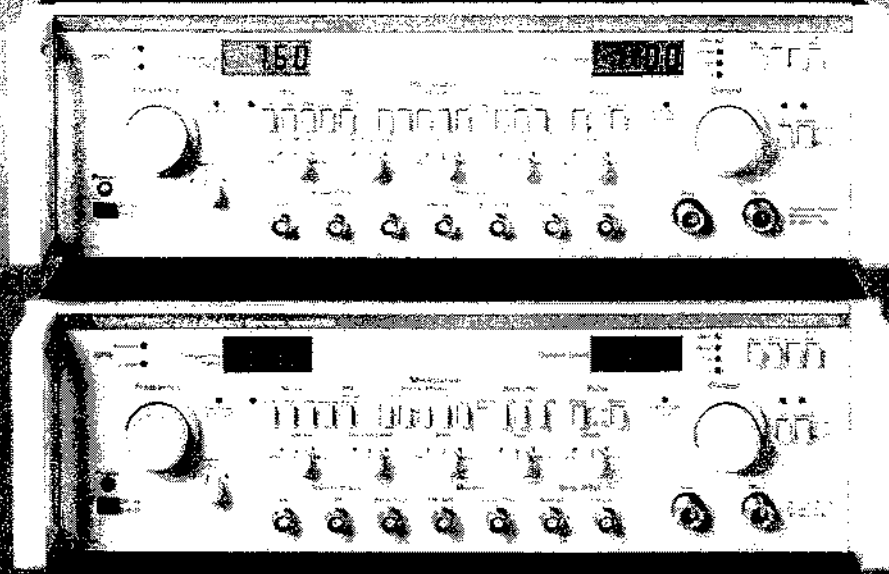


**MICROWAVE
SIGNAL GENERATORS
MODELS 904/907A**



3.7 to 12.4 GHz Signal Generators

- 0 to -127 dBm Output Control
- All Solid State Construction
- 80 dB Pulse On/Off Ratio
- Internal Frequency Sweep
- Optional GPIB Programming

All Solid State Construction

Wavetek's Model 900 Series Microwave Signal Generators feature 100% solid state construction and all the capabilities of traditional signal generators. Remote analog control of frequency and output level, internal full-band sweep and optional GPIB control further enhance their usefulness for many applications.

High Performance

Efficient RF power level control is provided by a single control knob with digital display and automatic internal power leveling. Power level accuracy is enhanced by a modern design which includes digital power correction. The electronic output attenuator will never wear out, even after continuous power cycling under computer control. Excellent pulse modulation characteristics meet the needs of modern radar

systems, while AM and FM provide versatility with a minimum of additional test equipment.

Optional GPIB Programming

The optional General Purpose Interface Bus (GPIB) programming is fully compatible with the IEEE Standard 488-1978. This option is ideal for high volume testing and applications which require remote control.

Versatility

A CW signal source with AM, FM, pulse modulation, and sweep capabilities. All parameters are independently adjustable. Pulse modulation, frequency modulation and sweep ramp signals from either the internal modulation generator or external input. Frequency and level can be externally controlled by analog voltages or optional GPIB. Auxiliary output and internal modulator signals are available at the front panel.

Modes

CW: Continuous RF output. Frequency and level adjustable.

FM: Internal or external signal frequency modulates the RF output. Rate and deviation adjustable.

Pulse: Internal or external signal pulse modulates the RF output. Pulse width adjustable or fixed 50% duty cycle; rate adjustable. External gate mode allows the external input to control pulse width and repetition rate.

Sweep: Internal or external controlled sweep (up to 15 Hz rate) of the entire RF frequency range.

SPECIFICATIONS

NOTE: Specifications for non-sweep modes only.

Frequency: Varied by a 10-turn potentiometer and vernier or by an external 0 to +5V GPIB control optional

Range

904: 3.7 to 7.6 GHz

907A: 7.0 to 12.4 GHz

Readout: 3 digit LCD.

Resolution: 10 MHz.

Accuracy: $\pm 1\%$ of reading.

Stability: Typically <60 ppm/°C and 20 ppm (+5, -10% line variation).

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Signal Purity

Residual FM: <5 kHz peak in a post-detection bandwidth of 100 Hz to 10 kHz.

Harmonics: <-25 dBc.

904: <-25 dBc.

907A: <-30 dBc.

Spurious: <-55 dBc.

Level: Varied by a 10-turn potentiometer or external 0 to +13.6V (-10 dB/V). Output can be unlevelled or automatically levelled. Output can be switched on and off. GPIB control optional.

Range (Levelled): 0 to -127 dBm; 0.225V to 0.100 μ V (into 50 Ω).

Range (Unlevelled): Typically >+3 to <-115 dBm.

Readout: 3 $\frac{1}{2}$ digit LCD, in units of dBm, dBref, Vrms.

Display Resolution: 0.1 dB.

Amplitude Accuracy

904:

Accuracy	Range
± 1 dB (typ ± 0.5)	0 dBm
± 2 dB	+1 to -100 dBm
± 3 dB	-100 to -120 dBm

Levelled power to approximately -127 dBm.

907A:

Accuracy	Range
± 1 dB (typ ± 0.5)	0 dBm
± 2 dB	+1 to -60 dBm
± 3 dB	-60 to -120 dBm

Levelled power to approximately -127 dBm.

Level Flatness (>-10 dBm): ± 1.0 dB

VSWR: <1.5 relative to 50 Ω .

Connector: Female type N coax.

Auxiliary Output: Typically >-10 dBm CW.

Reverse Power Protection: +30 dBm (both RF outputs).

Frequency Sweep

Internal: Pushbutton gives full band sweep; rate adjustable.

Rate Range: 0.02 to 15 Hz.

External: Control with ramp input, 0 to +5V for full band sweep.

904 Sweep Range: 3.7 to 7.6 GHz.

904 Rate Range: Up to 15 Hz.

907A Sweep Range: 7 to 12.4 GHz.

907A Rate Range: Up to 15 Hz.

Frequency Control Monitor: Output voltage (0 to +10V nominal) proportional to RF frequency control signal. 600 Ω source impedance.

Pen Lift (TTL): Selective polarity output pulse.

PULSE MODULATION

904

Transition Times: <20 ns for leading and trailing edges. (Typically 10 ns).

On-Off Ratio: >80 dB when main output is set at 0 dBm.

Width: 50 ns to 500 μ s in 2 ranges; for greater widths, use external gated mode.

Delay Range: 100 ns to 1 ms in 2 ranges, relative to normal sync.

(Not applicable to gated pulse).

907A

Transition Times: <35 ns for leading and trailing edges. (Typically 15 ns).

On-Off Ratio: >80 dB when main output is set at 0 dBm.

Width: 200 ns to 100 μ s in 2 ranges; for greater widths, use external gated mode.

Delay Range: 3 μ s to 1 ms in 2 ranges, relative to normal sync. (Not applicable to gated pulse).

Internal Mode: Fixed square wave or variable width pulses; 10 Hz to 10 kHz in 3 ranges.

External Trigger Input: 1 Vp-p min, ± 10 V max trigger; slope and trigger point adjustable; 0 to 10 kHz with full leveling.

External Gate Mode: RF output occurs for the duration that pulse trigger input signal exceeds trigger level setting; 0 to 10 kHz with full leveling.

FM—FREQUENCY MODULATION

Internal Sawtooth Modulator: 10 Hz to 10 kHz in 3 ranges; 0 to >5 MHz p-p deviation.

External Modulation: >1 MHz/V; ± 2.5 V max; >5 MHz p-p deviation; 10 k Ω nominal input impedance.

Bandwidth: >10 kHz (DC coupled).

AM—AMPLITUDE MODULATION

Bandwidth: >10 kHz (DC coupled).

Max Source Level: ± 2 V peak.

Sensitivity: 27 dB/V (nominal).

Input Impedance: 10 k Ω nominal.

MODULATOR OUTPUTS

FM: Signal from external or internal modulation generator. 600 Ω source impedance.

Pulse: Positive TTL level pulse set by modulator pulse repetition rate, delay, and width controls.

Normal Sync: Positive TTL level pulse occurring at selected repetition rate.

Delayed Sync: Positive TTL level pulse synchronous with modulator pulse with selected delay.

GENERAL

Literature: Refer to Models 904/907A Summary Brochure -900-10 and Technical Information Brochure -900-20 for more complete performance characteristics and instrument descriptions.

Environment: Specifications apply for 25 ± 10 $^{\circ}$ C after 1 hour warm-up. Instrument operates from 0 $^{\circ}$ to +50 $^{\circ}$ C, to 10,000 ft and to 90% relative humidity, non-condensing.

Storage: -25 $^{\circ}$ to +65 $^{\circ}$ C. Designed and type tested to MIL-T-28800 class V.

Dimensions (Max): 43.2 cm (17 in.) wide; 13.3 cm (5 $\frac{1}{4}$ in.) high; 49.5 cm (19 $\frac{1}{2}$ in.) deep. Adapters supplied for rack mounting.

Weight: 19.5 kg (43 lb) net; 23.2 kg (51 lb) shipping.

Power: 100V, 120V, 220V, 240V (+5%, -10%); 48 to 66 Hz; <130 VA.

OPTIONS

001: GPIB Programming. General Purpose Interface Bus (GPIB) programming fully compatible with the IEEE Standard 488-1978. Allows programming of frequency, level, CW, output on/off and levelled/unlevelled.

NOTE: Option requires factory installation. Option price applies to original purchase only. Contact factory for retrofit option price.

FACTORY/FOB

Sunnyvale, CA