

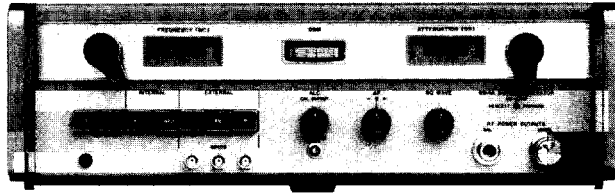


SIGNAL GENERATORS

UHF Signal Generators, Doublers, Pulse Modulator

Models 8614A, 8616A, 938A, 940A, 11720A

- 800-2400MHz, 1800-4500MHz



HP 8614A

HP 8614A, 8616A Signal Generators

The HP 8614A and 8616A Signal Generators provide stable, accurate signals from 800 to 2400 MHz (HP 8614A) and from 1800 to 4500 MHz (HP 8616A). Both frequency and attenuation are set on direct-reading digital dials. Selectable functions include CW, leveled output, square-wave modulation, and external AM, FM and pulse modulation. Modulation can be accomplished simultaneously with or without leveling.

The HP 8614A and 8616A can also be used with companion modulators, HP 8403A modulators and HP 8730-series PIN modulators to provide 80 dB pulse on/off ratio (see last page, this section). In addition, TWT amplifiers can be used with these generators to provide high power levels.

HP 8614A, 8616A Specifications

Frequency range: direct reading within 2 MHz, 800 to 2400 MHz. (HP 8614A), 1800 to 4500 MHz (HP 8616A)

Vernier: ΔF control has a minimum range of 1.0 MHz for fine tuning.

Frequency calibration accuracy (0 dBm & below): ± 10 MHz (8616A). ± 5 MHz (8614A).

Frequency stability: approximately 50 ppm/ $^{\circ}$ C change in ambient temperature, less than 2500 Hz peak residual FM; 30 ppm change for line voltage variation of $\pm 10\%$.

RF output power: +10 dBm (0.707 V) to -127 dBm into 50 Ω load, (+3 dBm to -127 dBm from 3000 to 4500 MHz). Output attenuation dial directly calibrated in dBm from 0 to -127 dBm. A second uncalibrated output (approximately -3 dBm) is provided on front panel.

Output impedance: 50 Ω ; SWR <2.0.

Internal square wave: 950 to 1050 Hz. Square wave can be synchronized with a +1 to +10 V signal at PULSE input.

External pulse: 50 Hz to 50 kHz; 2 μ s rise time, +20 to +100 V peak input.

External AM: dc to 1 MHz, >20 dB range.

External FM: front-panel connector capacity-coupled to repeller of klystron; four-terminal rear-panel connector (Cinch-Jones type S304AB) is dc-coupled to repeller of klystron.

Power source: 115 or 230 V $\pm 10\%$, 50 to 60 Hz, approximately 130 W.

Size: cabinet, 141 H x 425 W x 467 mm D (5.5" x 16.75" x 18.4"); rack mount, 133 H x 416 W x 483 mm D (5.2" x 16.4" x 19").

Weight: net, 19.5 kg (43 lb). Shipping, 22.7 kg (50 lb).

Accessory furnished: HP 11500A Cable Assembly.

Ordering Information

HP 8614A Signal Generator (800-2400 MHz)

HP 8616A Signal Generator (1800-4500 MHz)

HP 8614A and 8616A Options

Option 001: External modulation input connectors on rear panel in parallel with front-panel connectors; RF connectors on rear panel only.

Option 908: Rack mounting flange kit

Option 910: Extra operating and service manual

Price

\$7600

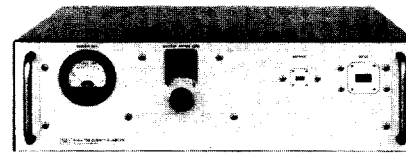
\$7600

add \$25

add \$37.50

add \$7.50

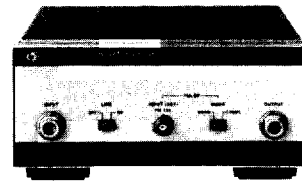
- Doubler sets for signal output 18-26.5 GHz, 26.5-40 GHz



HP 938A

2 to 18 GHz Pulse Modulator

- <10 ns rise and fall times
- >80 dB ON/OFF ratio



HP 11720A

HP 938A, 940A Frequency Doubler Sets

The HP 938A Doubler supplies power from 18 to 26.5 GHz and HP 940A from 26.5 to 40 GHz when driven by 9 to 13.25 GHz and 13.25 to 20 GHz sources respectively.

These frequency doubler sets consist of broadband harmonic generators suitably mounted in a waveguide section, a power monitor, a broad stopband low-pass filter, and a precision attenuator.

HP 938A, 940A Specifications

Frequency range: HP 938A, 18 to 26.5 GHz; HP 940A, 26.5 to 40 GHz.

Conversion loss: less than 18 dB at 10 mW input.

Output power: approximately 0.5-1 mW when used with typical HP signal generators; input power 100 mW maximum.

Output monitor accuracy: ± 2 dB.

Output attenuator accuracy: $\pm 2\%$ of reading or ± 0.2 dB whichever is greater.

Attenuator range: 100 dB.

Size: 137 H x 489 W x 457 mm D (5.4" x 19.25" x 18").

Weight: net, 9 kg (20 lb). Shipping, 11.8 kg (26 lb).

HP 11720A Pulse Modulator

The HP 11720A Pulse Modulator is a high performance microwave pulse modulator covering the range of 2 to 18 GHz. Because of this wide frequency coverage, it can be used to increase the modulation capabilities of many microwave sources (sweepers or signal generators) and eliminate the need for several individual modulators in broadband applications.

HP 11720A Specifications

Frequency range: 2 to 18 GHz.

ON/OFF ratio: >80 dB.

Rise and fall times: <10 ns.

Insertion loss: <6 dB, 2 to 12.4 GHz; <10 dB, 2 to 18 GHz.

Power: 100, 120, 220, 240 V +5, -10%; 48-400 Hz; 25 VA max.

Weight: net, 2.6 kg (6 lb). Shipping, 3.5 kg (8 lb).

Size: 101 mm H x 212 mm W x 290 mm D (4.0" x 8.4" x 11.4"). $\frac{1}{2}$ MW x $3\frac{1}{2}$ H x 11 D System II Module.

Ordering Information

HP 938A or 940A Frequency Doubler

Option 910: Extra operating & service manual

HP 11503A Flexible Waveguide P-Band

HP 11504A Flexible Waveguide X-Band

HP 11720A Pulse Modulator

Option 910: Extra manual

Price

\$8,600

add \$1

\$210

\$210

\$3250

add \$5