

SIGNAL GENERATORS



UHF SIGNAL GENERATORS

Direct-reading, direct control, 800 to 4200 MHz

Models 614A, 616B

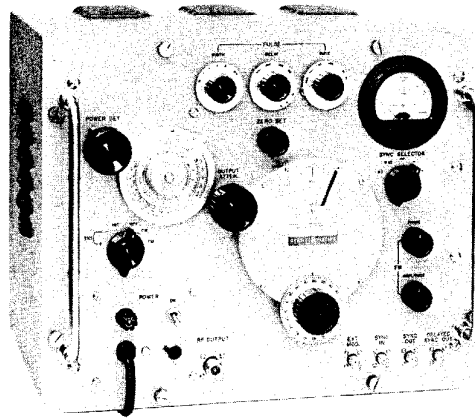
Ease of operation, direct-reading one-dial frequency control, high stability and accuracy and broad frequency coverage are all advantages of these widely used signal generators.

The 614A covers frequencies from 800 to 2100 MHz, has constant internal impedance with less than 1.6 SWR, and output accuracy of ± 1.5 dB over the range of -10 dBm to -127 dBm. The 616B gives complete coverage of frequencies from 1.8 to 4.2 GHz, has constant internal impedance with less than 1.8 SWR, and output accuracy of ± 1.5 dB from -7 dBm to -127 dBm.

On both instruments, operation is extremely simple. Carrier frequency is set and read directly on the large tuning dial. No voltage adjustments are necessary during operation because of the coupling device which causes oscillator repeller voltage to track frequency changes automatically. Oscil-

lator output is set and read directly on a simplified dial. Output may be continuous or pulsed, or frequency-modulated at power line frequency. Pulse modulation may be provided externally or internally. Internal pulsing may be synchronized with either positive or negative external pulses, or sine waves.

The oscillator portion of both the 614A and 616B consists of a reflex klystron in an external coaxial resonator. Frequency of oscillation is determined by a movable plunger which varies the resonant frequency of the resonator. Oscillator output is monitored by a temperature-compensated thermistor bridge circuit which is virtually unaffected by ambient temperature conditions. Voltage output is read directly. A logging scale on the frequency dial provides a resettability of 0.1%.



614A

Specifications

Frequency range: 614A, 800 to 2100 MHz; 616B, 1.8 to 4.2 GHz.

Frequency accuracy: $\pm 1\%$.

Frequency stability: 0.005%/°C change in ambient temperature; line voltage changes of $\pm 10\%$ cause 0.01% frequency change.

Output power range (into 50-ohm load): 614A, 0.5 mW or 0.158 volt to 0.1 μ V (-3 to -127 dBm) from 800 to 900 MHz, 1 mW or 0.224 volt to 0.1 μ V (0 to -127 dBm) from 900 to 2100 MHz; 616B, 1 mW or 0.224 volt to 0.1 μ V (0 to -127 dBm).

Power accuracy (at the end of 6-ft output cable, terminated in 50-ohm load): 614A, within ± 1.5 dB from -10 to 127 dBm; 616B, within ± 1.5 dB from -7 to -127 dBm.

Internal impedance: 614A, 50 ohms, reflection coefficient less than 0.23 (1.6 SWR, 12.7 dB return loss); 616B, 50 ohms, reflection coefficient less than 0.285 (1.8 SWR, 10.9 dB return loss).

Modulation: internal or external pulse or FM.

Internal pulse modulation: pulse repetition rate variable from 40 to 4000 per sec; pulse length variable from 1 to 10 μ s; delay variable from 3 to 300 μ s between synchronizing signal and RF pulse.

External pulse modulation: ext $-$: -40 to -70 V, 1 to 2500 μ s wide, ext $+$: $+40$ to $+70$ V, 1 to 400 μ s wide, square wave: $+40$ to $+70$ V p p, 40 to 4000 Hz.

Trigger pulses out: (1) simultaneous with RF pulse; (2) in advance of RF pulse, variable from 3 to 300 μ s (both approximately 1 μ s rise time, amplitude $+10$ to $+50$ volts).

External synchronization: pulses, ± 10 to ± 50 volts, 1 to 20 μ s wide; may also be synchronized with sine waves.

Frequency modulation: oscillator sweeps at power line frequency; deviation and phase adjustable; maximum deviation approx. 3 MHz p-p.

RFI: conducted and radiated leakage limits are below those specified in MIL-I-6181D.

Power: 115 or 230 volts $\pm 10\%$, 50 to 400 Hz, approx. 160 watts.

Dimensions: cabinet: $17\frac{1}{4}$ " wide, $13\frac{5}{8}$ " high, $13\frac{1}{2}$ " deep (438 x 346 x 343 mm); rack mount: 19" wide, $13\text{-}31/32$ " high, $12\frac{1}{8}$ " deep behind panel (483 x 355 x 308 mm).

Weight: net 60 lb (27.0 kg); shipping 72 lb (32.4 kg).

Accessory furnished: 11500A RF Cable Assembly.

Accessories available: 614A: 360C Low-Pass Filter, $f_c = 2200$ MHz, 10503A Video Cable Assembly; 616B: S281A Waveguide-to-Coax Adapter, 2.6 to 3.95 GHz; G281A Waveguide-to-Coax Adapter, 3.95 to 5.85 GHz; 360D Low-Pass Filter, $f_c = 4.1$ GHz.

Price: HP 614A or HP 616B, \$2400 (cabinet); HP 614AR, \$2440 (rack mount); 616BR, \$2449 (rack mount).