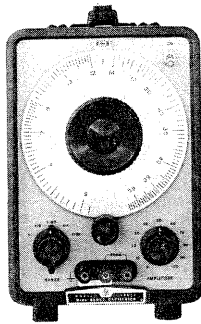


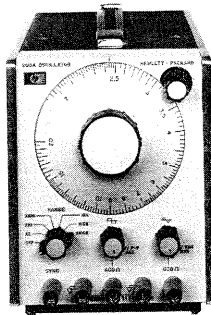
# OSCILLATORS

## 4 Hz to 10 MHz Oscillators

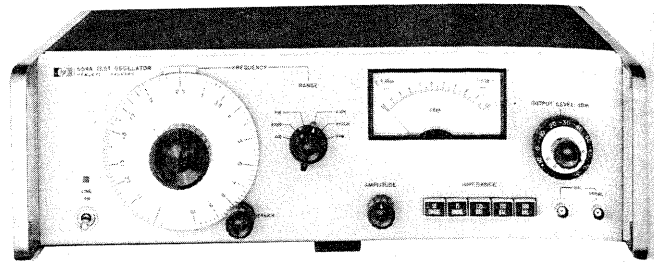
### Models 200CD 204C 204D 209A 654A



200CD



209A (shown), 204C, 204D



654A

### Specifications

	200CD	204C,D	209A	654A
frequency range	5 Hz. to 600 KHz.	5 Hz. to 1.2 MHz.	4 Hz. to 2 MHz.	10 Hz to 10 MHz
number of ranges	5 overlapping	6 overlapping	6 overlapping	
dial accuracy	± 2%	± 3%		
flatness (1 KHz. ref.)	± 1 dB.	± 1% 5 Hz to 100 Hz ± .5% 100 Hz to 300 KHz ± 1% 300 KHz to 1.2 MHz  (Low Distortion mode) ± 1% 4 Hz to 100 Hz ± .5% 100 Hz to 300 KHz ± 1% 300 KHz to 1 MHz ± 5% 1 MHz to 2 MHz  (Normal mode) as above, except: +5%, -1% 5 Hz to 100 Hz	± 2%, 100 Hz to 5 MHz, ± 3%, 10 Hz to 100 Hz, ± 4%, 5 MHz to 10 MHz  (± 10 dbm and 0 dbm, 1 kHz ref.) ± 0.5% for: 10 Hz to 10 MHz for unbalanced outputs 10 Hz to 5 MHz for 135 Ω and 150 Ω outputs, 10 Hz to 1 MHz for 600 Ω output	
output voltage (600 ohm load) (open circuit)	10 V rms (> 160 mW.) 20 V rms	> 2.5 V rms (10 mW.) > 5.0 V rms	5 V rms (40 mW.) 10 V rms	+11 dbm to -90 dbm, 10 db and 1 db steps
output impedance	600 ohms	600 ohms		50, 75 Ω unbal; 135 Ω, 150 Ω, 600 Ω balanced
attenuator	continuously variable	(204C) continuously variable, > 40 dB. range (204D) +10 to -70 dBm in 10 dB steps plus vernier. Accuracy is ± 0.3 dB through -60 dBm range, ± 0.5 dB through -70 dBm range.	continuously variable, > 26 dB. range	99 db range in 10 db and 1 db steps with ± 0.13 db (± 1.5%) accuracy except ± 1 db (± 10%) at levels below 60 dbm at frequencies > 300 KHz
distortion	<.5% 5 Hz to 20 Hz <.2% 20 Hz to 200 KHz <.5% 200 KHz to 600 KHz	<.6% 5 Hz to 30 Hz <.1% 30 Hz to 100 KHz <.1% 100 KHz to 1.2 MHz	<.2% 4 Hz to 200 Hz <.1% 200 Hz to 200 KHz 1% 200 KHz to 2 MHz	10 Hz to 1 MHz, <40 db (1%) 1 MHz to 10 MHz, <34 db (2%)
hum and noise voltage	<.1% of rated output	<.01% of output		<70 db (.003%) of rated output.
balance	<.1% at lower frequencies approx. 1% at higher frequencies	> 40 dB below 20 KHz		> 50 db 10 Hz to 1 MHz > 40 db 1 MHz to 10 MHz
square wave output			20 V p-p open circuit symmetrical about 0 V.	
rise/fall time			<50 nSec into 600 ohms	
synchronization input		oscillator can be synchronized to an external signal. Sync range, the difference between sync frequency and set frequency, is a linear function of sync voltage, ± 1%/V rms for sine wave, maximum input ± 7 V pk (± 5 V rms).		
synchronization output		sine wave in phase with output; fixed level: 204C,D: 100mV into 10 Kohms, 100 pF 209A: 1.7 V rms (open circuit)		
input voltage	115 or 230 VAC ± 10% 48-440 Hz.			
power consumption	90 VA	7 VA		35 VA
net weight	9.9 kg (22 lb)	2.7 kg (6 lb)		9.4 kg (21 lb)
shipping weight	10.8 kg (24 lb)	3.6 kg (8 lb)		11.8 kg (26 lb)
dimensions H x W x D	292 mm x 187 mm x 365 mm 11.5 x 7.4 x 14.4")	155 mm (without removeable feet) x 130 mm x 203 mm (6.1 x 5.1 x 8")		133 mm H x 425 mm W x 337D (5.21" x 16.75" x 13.25")
options	option 002 - operation from AC line or internal rechargeable batteries			
price	\$1150	204C: \$730 204D: \$830 Option 002: \$100	\$865	\$2025