

Table 1-1. Specifications

OUTPUT FREQUENCIES: 5 MHz, 1 MHz, 100 kHz sinusoidal; 1 MHz or 100 kHz clock drive.

OUTPUT VOLTAGE: $\geq 1V$ rms into 50Ω ; clock drive $\geq 0.5V$ rms into 1000Ω .

AGING RATE: $< |5 \times 10^{-10}|$ per 24 hours.

STABILITY:

As a function of ambient temperature: $< 5 \times 10^{-11}/^{\circ}C$ from $0^{\circ}C$ to $+50^{\circ}C$ ($< 2.5 \times 10^{-9}$ from $0^{\circ}C$ to $+50^{\circ}C$).

As a function of load: $< \pm 2 \times 10^{-11}$ for any of the following loads; open, short, 50Ω resistive, 50Ω inductive, 50Ω capacitive.

As a function of supply voltage: $< \pm 5 \times 10^{-11}$ for 22-30V dc (battery operation, 105B) and for 115/230V $\pm 10\%$.

RMS DEVIATION OF 5 MHz OUTPUT* (due to noise and frequency fluctuation):

Averaging Time	Max. Fractional-Freq. Deviation ($\Delta f/f$)	Max. RMS Phase Dev. (milliradians)
1 ms	5×10^{-10}	0.016
10 ms	1×10^{-10}	0.031
0.1 s	1×10^{-11}	0.031
1 s	1×10^{-11}	0.31
10 s	1×10^{-11}	3.1

All data is based on at least 100 samples. Data was taken over a 20-second interval for 1 ms, 10 ms, and 0.1s averaging times, over 200- and 2,000-second intervals respectively for 1 and 10s averaging times. The crystal aging rate has been removed from this data.

SIGNAL-TO-NOISE RATIO (5 MHz): > 90 dB below rated output; (filter bandwidth (3 dB) = 100 Hz).

HARMONIC DISTORTION (5 MHz, 1 MHz, 100 kHz): Down more than 40 dB from rated output.

NON-HARMONIC COMPONENTS (5 MHz, 1 MHz, 100 kHz): Down more than 80 dB from rated output.

OUTPUT TERMINALS: 5 MHz, 1 MHz, 100 kHz front and rear panel BNC connectors, clock drive and electrical frequency control, rear panel BNC connectors.

FREQUENCY ADJUSTMENTS: Fine adjustments: front panel control with 5×10^{-8} range, with digital dial reading parts in 10^{10} . Coarse adjustments: 1×10^{-6} coarse control is screw-driver adjustment at front panel.

*With crystal filter, 100 Hz wide.

PHASE LOCKING CAPABILITY: A voltage control allows > 4 parts in 10^8 frequency control for locking to an external source. $-5V$ to $+5V$ required from phase detector (not supplied).

ENVIRONMENTAL:

Storage Temperature: $-40^{\circ}C$ to $+75^{\circ}C$ (manufacturer specifies $-40^{\circ}C$ to $+50^{\circ}C$ limit for 105B battery storage).

Operating Temperature: $0^{\circ}C$ to $+50^{\circ}C$.

MONITOR METER: Front panel meter and associated selector switch monitors: supply voltage, $+18V$, oven, 5 MHz output, 1 MHz output, 100 kHz output.

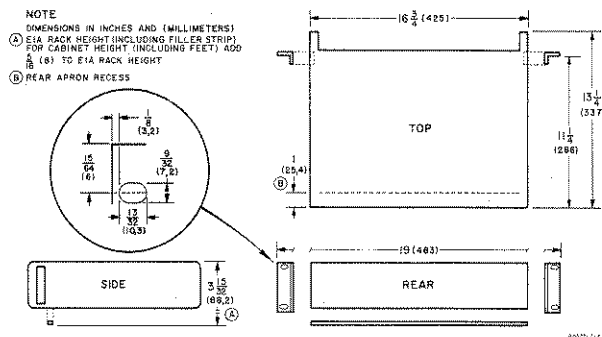
STANDBY SUPPLY CAPACITY: (Model 105B only): 8 hours at $+25^{\circ}C$ ambient temperature.

POWER REQUIREMENTS:

115/230V $\pm 10\%$ at 17W (21W warmup) for 105A; 18W (24W warmup) for 105B float charge. Add 12W for fast charge.

Or 22 to 30V dc at 6.4W (10.3W warmup).

DIMENSIONS:



WEIGHT: 105A - Net, 14.7 lbs (6.7 kg); Shipping, 17.4 lbs (7.9 kg); 105B - Net, 24 lbs (10.9 kg), Shipping, 32 lbs (14.5 kg).

ACCESSORIES FURNISHED: Rack mounting kit, ac power cord, 2 extender boards, 15-pin: HP 5060-0049, 22-pin: HP 5060-0630.

COMPLEMENTARY EQUIPMENT:

Model 115BR/CR Frequency Divider and Clock. Model 5085A Standby Power Supply with battery for extending standby power capability by 40-70 hours.