Table 1-3. Specifications

5065A

Frequency Stability:

Long term: $\pm 1 \times 10^{-11}$ per month (maximum limit of drift rate).

Short term*: for 5 MHz output.

Fraction Frequency Fluctuations	Avg. Time (τ)
$< 7.5 \times 10^{-10}$	1 ms
$< 1.5 \times 10^{-10}$	10 ms
$< 1.5 \times 10^{-11}$	0.1 s
$< 5 \times 10^{-12}$	1 s
$< 1.6 \times 10^{-12}$	10 s
$< 5 \times 10^{-13}$	100 s
$< 5 \times 10^{-13}$	1000 s

Calibration Accuracy: Set at factory to $\pm 1 \times 10^{-11}$ of specified time scale.

Settability: $\pm 2 \times 10^{-12}$.

Time Scale: Set at factory to UTC unless specified differently.

Tunability: Coarse Frequency Synthesizer Adjustment: Range: 1000×10^{-10}
Resolution: $< 2 \times 10^{-9}$, thumbwheel adjust.
Fine Frequency Magnetic Field Adjustment:
Range: 2×10^{-9} Resolution: 2×10^{-12}

Warm-up: Within 1×10^{-10} in 1 hour and 5×10^{-11} in 4 hours of final frequency after 24 hours "off" time at 25° C. Units typically warm-up to better than ±2 parts in 10^{11} of factory calibrated frequency.

***DEFINITION OF TERMS**

Short-Term Stability:

See Statistics of Atomic Frequency Standards by David W. Allen, Proceedings of IEEE, Feb. 1966, p. 221, and HP Application Note 116 for measurement details.

Settability:

The degree to which an oscillator may be adjusted to correspond with a reference. This is also termed calibration.

OUTPUTS:

Frequencies: 5 MHz, 1 MHz, 100 kHz.
Voltages Levels: >1 V rms into 50 ohms at 5 MHz, 1 MHz, 100 kHz.
Connectors: BNC Front and Rear for 5 MHz, 1 MHz, 100 kHz.
Harmonic Distortion: (5 MHz, 1 MHz, 100 kHz) Down more than 40 dB from rated output.
Nonharmonically Related Output: (5 MHz, 1 MHz, 100 kHz) Down more than 80 dB from rated output.
Signal-to-Noise Ratio: For 1 and 5 MHz, >87 dB at rated output (in a 30 kHz noise bw).

ENVIRONMENTAL:

Temperature, Operating: 0° to 50° C. Frequency change is $< \pm 4 \times 10^{-11}$ from frequency reference at at 25° C.
Temperature, Nonoperating: -40° to +75° C. (With Options to 50° C.)
Production Units Have Passed Type Test as Follows:
HUMIDITY: 0 to 95% relative humidity.
VIBRATION: MIL-STD-167 and MIL-E-5400, CURVE I, with isolators.
SHOCK: MIL-T-21200, and MIL-E-5400 (30 G's).
ELECTROMAGNETIC COMPATIBILITY (EMC): MIL-I-6181D and MIL-STD-461, Class A.
ALTITUDE: Frequency change is $> 5 \times 10^{-11}$ from 0 to 40,000 ft.
FREQUENCY STABILITY DUE TO:
Magnetic Fields: $< 5 \times 20^{-12}$ for 1 gauss dc change or 1 gauss peak ac, 60 ±10% Hz and 400 ±10% Hz.
Line Voltage: $< 4 \times 10^{-12}$ over specified input range.

MATING CONNECTORS:

EXT DC input: HP 1251-0126 (5-contact), Cannon MS 3106E-14S-5S (Series ME) furnished.

POWER: 115 or 230 Vac ±10%, 50 to 400 Hz, or 23 to 30 Vdc.
Approx. power required:

	24 Vdc	**115 Vac**
Without Options	35 W	49 W
Option 001 (Add)	7.5 W	10 W
Option 002 (Add)	0 W	6 W
Option 003 (Add)	7.5 W	16 W

WEIGHT: Net, 34 lb (15,4 kg). Shipping, 51 lb (23,5 kg). Option 001, add 2 lb (0,9 kg). Option 002, add 3.5 lb (1,6 kg).

WARRANTY: 1 year, except 3 years for RVFR.

Table 1-3. Specifications (Continued)

OPTION 001 TIME STANDARD

CLOCK PULSE:
Rate: 1 pulse per second. **Rise Time:** <50 ns. **Fall Time:** <1 μs. **Amplitude:** +10 V peak ±10%. **Jitter:** 5 ns rms. **Width:** 20 μs min. All specs are with 50Ω load. **Output:** Front-panel BNC.

SYNCHRONIZATION: Automatic to 10 ±1 μs, delayed from reference input pulse (rear BNC). Manual adj. to ±50 ns. Reference pulse must be >+5 v with a rise time <50 ns and width >0.5 μs.

CLOCK MOVEMENT: 24-hour with sweep second hand.

OPTION 002 STANDBY POWER SUPPLY

CAPACITY: 10-minute minimum at 25° C after full change (incl. Option 001).

CHARGE CONTROL: Front panel, Fast Charge-Float-Reset switch.

INDICATOR: A front-panel light flashes when ac power is interrupted and battery is being used. A continuous light indicates a fast charge condition.

OPTION 003

Combines Options 001 and 002

PERFORMANCE OF QUARTZ OSCILLATOR ONLY
(Rubidium Control Loop Open)

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

FREQUENCY ADJUSTMENTS:
Fine Adjustment: 5×10^{-8} range, with dial readings of parts in 10^{10}.
Coarse Adjustment: 1 part in 10^6, screwdriver adjustment at front panel.

STABILITY:
As a Function of Ambient Temperature: Frequency change is less thatn 2.5×10^{-9} total from 0° to +50° C.
As a Function of Load: $\pm 2 \times 10^{-11}$ from open circuit to short, 50ΩR, L, or C load change.
As a Function of Supply Voltage: $\pm 5 \times 10^{-11}$ for 23 to 30 Vdc from 26 Vdc reference, or for 115/230 Vac ±10%.

DIMENSIONS: