

Rubidium (Rb) oscillator specification

Document ref. XO00895M-ELPROMA for NTS-5000 model only

Output

Output frequency	10 MHz sine wave
Amplitude	0.5 V _{rms} , ±10 %
Phase noise (SSB)	<-130 dBc/Hz (10 Hz) <-140 dBc/Hz (100 Hz)
Spurious	<-130 dBc (100 kHz BW)
Harmonic distortion	<-25 dBc
Return loss	>25 dB (at 10 MHz)
Accuracy at shipment	±5 × 10 ⁻¹¹
Aging (after 30 days)	<5 × 10 ⁻¹¹ (monthly) <5 × 10 ⁻¹⁰ (yearly)
Short-term stability (Allan variance)	<2 × 10 ⁻¹¹ (1 s) <1 × 10 ⁻¹¹ (10 s) <2 × 10 ⁻¹² (100 s)
Holdover	72 hour Stratum 1 level
Frequency retrace	±5 × 10 ⁻¹¹ (72 hrs. off, then 72 hrs. on)
Settability	<5 × 10 ⁻¹²
Trim range	±2 × 10 ⁻⁹ (0 to 5 VDC) ±1 ppm (via RS-232)
Warm-up time	<6 minutes (time to lock) <7 minutes (time to 1 × 10 ⁻⁹)
Voltage sensitivity	<2 × 10 ⁻¹¹ (1 VDC supply change)

Electrical

Input voltage	+24 VDC (nom.), +22 VDC (min.), +30 VDC (max.)
Current	2.2 A (warm-up), 0.6 A (steady-state) at 25 °C (Note 1)
Protection	±30 VDC to any pin except rf out
RF protection	100 mA (stable w/ any termination)
Cal reference out	5.00 ± 0.05 VDC
RS-232	9600 baud, 8 bits, no parity, 1 stop bit, 0 to 5 V levels with X-on/X-off protocol
1 pps measurement	±10 ns (accuracy), ±1 ns (resolution)
1 pps output set	±10 ns (accuracy), ±1 ns (resolution)

Environmental

Operating temperature	-20 °C to +65 °C (baseplate)
Temperature stability	±1 × 10 ⁻¹⁰ (-20 °C to +65 °C baseplate)
Storage temperature	-55 °C to +85 °C
Magnetic field	<2 × 10 ⁻¹⁰ for 1 Gauss field reversal
Relative humidity	95 % (non-condensing)

Miscellaneous

Design life ²	20 yrs.
Size	2.00" × 3.00" × 4.00" (HWD)
Weight	1.32 lbs.