



4411A

GPS Disciplined Crystal Oscillator Reference

KEY FEATURES

- Provides Five Timing Signal Types
 - 1 PPS: 4 TTL Outputs
 - 10 MHz: 4 Sinewave Outputs
1 TTL Output
 - IRIG-B: 4 Modulated Outputs
2 DC Level Shift Outputs
- Front Panel Time Display
- Front Panel LEDs Indicate System Status
- Ethernet Monitoring
- Stratum 1 via GPS

The 4411A is a time and frequency recovery system that generates precise signals traceable to UTC. It utilizes a GPS disciplined crystal oscillator frequency reference to provide timing outputs characterized by the short-term stability of the crystal reference and the longterm stability of GPS.

The versatility of the 4411A makes it suitable for a variety of applications. It provides multiple copies of 5 different timing signals on the rear of the 1U-high, 19" rack-mount chassis.

Year, day, and time-of-day are displayed on the front panel. The standard Ethernet connection simplifies integration with complex systems by allowing health and status information to be monitored remotely.



4411A GPS Disciplined Crystal Oscillator Reference

4411A Specifications

ELECTRICAL SPECIFICATIONS

- GPS Antenna input: BNC female with 5 V on center conductor
- 10 MHz Sine output (4)
 - Connector: BNC female
 - Level: 13 ± 1 dBm
 - Impedance: $50 \pm 5\Omega$
 - SSB Phase noise
 - 1 Hz: -85 dBc/Hz
 - 10 Hz: -115 dBc/Hz
 - 100 Hz: -135 dBc/Hz
 - 1 kHz: -145 dBc/Hz
 - 10 kHz: -150 dBc/Hz
 - Long term stability in Holdover: $<5 \times 10^{-10}$ per month
- 10 MHz TTL Output (1)
 - Connector: BNC female
 - Level: 3 V into 50Ω
- 1PPS Output (4)
 - Connector: BNC female
 - Level: 4.5 V into 50Ω
 - Impedance: $50 \pm 5\Omega$
 - UTC Offset accuracy: 50 ns RMS
 - Holdover accuracy: 15 μ s over 24 hours
- IRIG-B Modulated output (4)
 - Connector: BNC female
 - Timecode: IRIG-B 123
 - Level: 3 Vpp into 50Ω
 - Impedance: $50 \pm 5\Omega$
 - Accuracy: 7 ± 2 μ s relative to 1PPS
- IRIG-B DC Level shift output (2)
 - Connector: BNC female
 - Timecode: IRIG-B 003
 - Level: 4.4 V into 50Ω

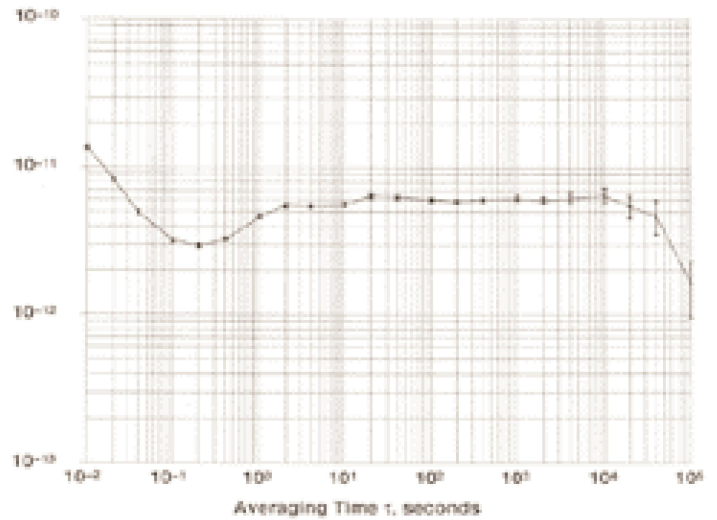
ENVIRONMENTAL & PHYSICAL SPECIFICATIONS

- Temperature range: 0°C-50°C (operating)
- Humidity: 0-95% Non-condensing (operating)
- AC Input: 90 – 264 V AC, 85 W, 47 – 63 Hz
- Dimensions: 1.75" (4.45 cm) H x 19" (48.26 cm) W x 12" (30.48 cm) D
- Weight: 9 lb (4 kg)

OPTIONS

- 001 GPS Antenna
- 002 30 m GPS Antenna cable
- 003 60 m GPS Antenna cable
- 004 Lightning arrestor

Allan Deviation $\sigma_y(\tau)$



Typical Frequency Stability



Rear View



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