



StarLoc II Plus

Precision GPS Rubidium Time & Frequency Reference

KEY FEATURES

- Reliability and Performance of Rubidium
- Holdover <1 micro sec in 24 Hours
- MTBF Greater than 300,000 Hours
- Never Requires Calibration

APPLICATIONS

- Stratum 1 Accuracy (<1E-12)
- Cellular Base Station (CDMA, TDMA, and UMTS)
- Fixed Wireless (MMDS, LMDS, and Wireless Local Loop)
- Broadcast (DVB, DAB, and DTV)
- Asset Location, E911

INTRODUCTION

Symmetricom's StarLoc II Plus™ is a small, low-cost, low-power requirement package that provides the precision time and frequency synchronization required by base stations, optical network nodes, and high-speed digital networks. It is the ideal choice for OEM applications in this area.

StarLoc II Plus is Symmetricom's latest addition to its extensive line of precision time and frequency products. This advanced new product incorporates the latest GPS receiver technology, the industry leading X72® precision rubidium oscillator and improved tracking algorithms.

TECHNOLOGY

Using Symmetricom's proprietary Snapshot™ technology, a network of StarLoc II Plus units is able to lock system time to within 20 nsec (RMS) of each other. After a quick initial survey, only one GPS satellite need be visible in order to maintain system accuracy. This is especially important in a crowded urban environment that lacks antenna locations with an unobstructed view of the sky. Another helpful and advanced feature is the T-RAIM (time-receiver autonomous integrity monitoring) algorithm which monitors the health of individual GPS satellites. This algorithm assures that timing and position information from a

malfunctioning satellite is not used, thus preventing it from negatively affecting your system's accuracy.

Contact Symmetricom to discuss your specific requirements. Discover how our new StarLoc II Plus, or another of the many precision timing and frequency products designed and manufactured by Symmetricom, can enhance your applications and improve your bottom line.



FIG.1 StarLoc II Plus

StarLoc II Plus Specifications

ELECTRICAL SPECIFICATIONS

- Inputs: L1 GPS (1575.42 MHz.) C/A code (from GPS antenna)
24 Vdc \pm 20% @ 33W
- Outputs: 1 PPS TTL @ 50 ohm
10 MHz Sine @ 50 ohm 13 dBm \pm 2 dB, +5V@80 ma for antenna Amp.
RS-232 for GPS time/status alarms
- Accuracy: Timing Preferred Application (Algorithm TP): 20 nsec RMS between units; Frequency Preferred Application (Algorithm FP): $<$ 5E-11 measured instantaneously $<$ 1E-12 (24 hour average)
- Phase Noise:

	Standard	Low Noise
1 Hz	$<$ -90 dBc/Hz	$<$ -100 dBc/Hz
10 Hz	$<$ -120 dBc/Hz	$<$ -125 dBc/Hz
100 Hz	$<$ -130 dBc/Hz	$<$ -145 dBc/Hz
1 KHz	$<$ -145 dBc/Hz	$<$ -150 dBc/Hz
10 KHz	$<$ -150 dBc/Hz	$<$ -155 dBc/Hz
- Holdover¹:
Standard = $<$ 1 micro sec over 12 hours
Extended Option = $<$ 1 micro sec over 24 hrs
- Spurious:
Harmonic: $<$ -30 dBc
Non-Harmonic: $<$ -80 dBc
- Timestamp message: Calendar date and time to 1 second using Symmetricom Serial Interface Protocol

ENVIRONMENTAL SPECIFICATIONS

- Operating Temperature: 0°C to +55°C
- Storage Temperature: -40°C to +85°C
- Operating Altitude²: -200 ft to 40,000 ft. (12,200 meters)
- Operating Humidity: 90%, Non-condensing

PHYSICAL SPECIFICATIONS

- Size: 8.5" L X 4.0" W X 1.5" H (215.9mm L X 101.6mm W X 38.1mm H)
- Weight: ~29 ounces (~822 grams)
- Fault Indicators: Software controlled/Power On LED (GRN)
- Antenna Input: TNC Connector
- Outputs: 1 PPS and 10 MHz: BNC connectors, RS-232: DB-9M (DTE)
- Warranty: 1 year (Consult factory for extended warranty)

¹Holdover refers to operation without GPS signals after an initial period of 8 hours of proper GPS reception in temperature controlled environment (+/-3°C).

²Maximum operating temperature derated above 5,000 feet (1,525 meters)
Values are typical unless otherwise noted



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