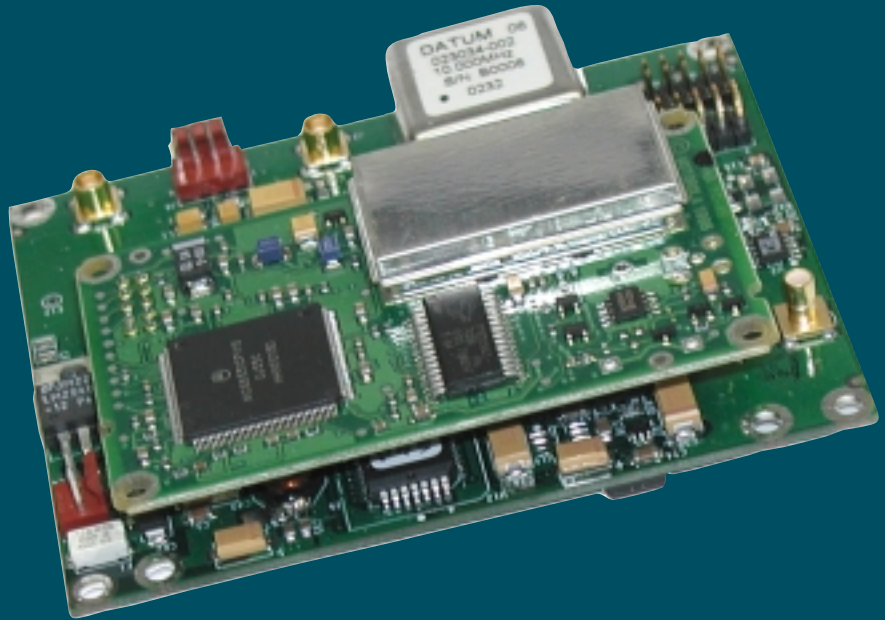# StarLite

From the StarLoc Family of Products.

Precision Time & Frequency Reference for OEMs.

Benefits

- **Stratum 1 Accuracy (<1E-12) Supports All Base Station/ Node B Applications**
  - CDMA, TDMA, UMTS, GSM
  - LMDS, MMDS, Wireless Local Loop
  - Asset location, E911
  - DTV, DVB-T, DAB

- **Provides 10 MHz & 1PPS Synchronized to GPS**

- **Contact Factory for Custom Form Factor or Outputs**

Low Cost GPS Timing Receiver

StarLite is Datum's latest addition to the StarLoc family of precision time and frequency products. StarLite represents the smallest GPS receiver. With the **StarLite**, Datum has taken the popular StarLoc architecture and optimized it for OEM applications. Size, part count and cost have all been reduced without sacrificing the industry leading performance and reliability of the design. Meanwhile, ease of integration has been improved by providing the user with form factor, connectorization and input voltage options tailored for OEM requirements.

Using Datum's proprietary **Snapshot**™ technology, a network of **StarLite** 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 we have incorporated to monitor 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 Datum to discuss your specific requirements. Discover how our **StarLite**, or another of the many precision timing and frequency products designed and manufactured by Datum, can enhance your applications.

Electrical Specifications

- **Inputs:**   L1 GPS (1575.42 MHz.) C/A code
  (from GPS antenna)

  12 or 15 Vdc ±5%
  12W Max 7.5W Steady State

- **Outputs:**   1 PPS TTL @ 50Ω

  10 MHz Sine @ 50Ω (coherent with 1 PPS)
  13 dBm ±2 dB

  +5V@80 ma for antenna Amp.

  RS-232 for GPS time/status alarms

- **Timing Accuracy:**   ≤20 nsec RMS between units over any 20 minute
  interval (under limited temp. variations)

  ±1 sec programmable offset from GPS in 17ns
  steps

- **Frequency Accuracy:**   <1E-12 (24 hour average)
  <1E-10 (Instantaneous)

- **Phase Noise:**

1 Hz	<-82 dBc/Hz
10 Hz	<-120 dBc/Hz
100 Hz	<-140 dBc/Hz
1 KHz	<-145 dBc/Hz
10 KHz	<-150 dBc/Hz
100 KHz	<-150 dBc/Hz

- **Holdover[1]:**   <1 μs over 2 hours typ.
  <1 μs over 30 minutes 99.9% of the time.

- **Spurious:**

Harmonic:	<-30 dBc
Non-Harmonic:	<-80 dBc

- **Communication Protocol:**   Datum Serial Binary Interface Protocol (TTL Levels)
  Messages Handling:
       Configuration
       Calendar Date and Time to 1 sec
       Receiver Location
       Alarming

Environmental Specifications

- **Operating Temperature:**   -10℃ to +65˚C
- **Storage Temperature:**   -40℃ to +85℃
- **Operating Altitude[2]:**   Operating: -200 ft to 40,000 ft. (12,200 meters)
- **Operating Humidity:**   ≤90%, Non-condensing

Physical Specifications

- **Size:**   4" L X 3.25" W X 1.1" H
- **Weight:**   5 ounces
- **Antenna Input:**   SMB
- **Power Input:**   Molex 3 pin header (PN 22-23-2031)
- **Outputs:**   1 PPS and 10 MHz: MCX connectors
  Comm port: Molex 4 pin header (PN 22-23-2041)
- **Warranty:**   1 year (Consult factory for extended warranty)

[1]Holdover refers to operation without GPS signals after an initial period of 8 hours of proper GPS reception

[2]Maximum operating temperature derated above 5,000 feet (1,525 meters)