



PICOSYNC-II GPS ENGINE

PicoSync™ -II

OEM GPS Time & Frequency Engine

The PicoSync-II is an OEM Time & Frequency module designed specifically for the OEM who requires a high performance time and frequency system in a small and economical package.

With a design emphasis on synchronizing remote locations, the PicoSync is ideal for DVB-T, WiMAX, CDMA, TDMA, GSM, TDOA, and other telecom and geo-location application technologies.

- **Highly integrated, small size, low power; fits into most demanding applications**
- **Can be supplied with a case or as a board-level product**
- **Outstanding performance based on PicoSync's ability to learn the characteristics of its OCXO oscillator and compensate for its predictable behavior.**

APPLICATIONS

- Wireless and wireline telecom sync requirements (T1 or E1 standards)
- State and federal communications systems/ simulcast
- Test equipment and instruments
- Specialized LAN and WAN sync requirements
- Satellite ground station equipment
- Power utility and public services
- Location-based services and emergency phone infrastructure.



FEATURES

- Accuracy
 - Time: <50nS peak (UTC)
 - Frequency: 1E-12
- Outputs
 - 1PPS with 10MHz
 - Or
 - 2.048 MHz with 10MHz
 - Or
 - 2.048 MHz with 2.048 Mbits/s (ITU-T G.703)
- User interface
 - Standard RS-232
- Available with 12, 27, or 48 VDC power supply
- GPS Receiver
 - Standard Civil C/A code (L1)



SPECIFICATIONS

Output Specifications

- 1 PPS, 50 Ω , TTL level, BNC, 200ms width, 20ns rise time
- 10MHz Sine, 50 Ω , 7.5 dBm
- 2.048 MHz, 75 Ω , ITU-T G.703 § 13
- E1 (2.048 Mbits/s), 75 Ω , ITU-T G.703 § 9
- Connectors are : BNC, 1.6/5.6, others on demand

Frequency Accuracy

With GPS (Locked)¹ 1E-12
24 hour Average

Time Accuracy

With GPS (Locked)¹ <50ns Peak to UTC
24 hour Average and <25ns RMS

Time & Frequency Accuracy without GPS (unlocked)

<u>Holdover Period</u>	<u>Time</u>
After 8 hours and $\pm 25^{\circ}\text{C}$ temp Δ	<10 μS
After 24 hours and $\pm 5^{\circ}\text{C}$ temp Δ	<10 μS

Short Term Stability

<u>(Allan Variance)</u>	<u>Quartz OSC</u>
1 sec	1E-11
10 sec	2E-11
100 sec	2E-11

Phase Noise

10 Hz	-110 dBc/Hz
100 Hz	-130 dBc/Hz
1 kHz	-135 dBc/Hz
10 kHz to 100 kHz	-145 dBc/Hz
Harmonics	<-40 dBc
Non-Harmonics	<-90 dBc > 1 MHz <-70 dBc < 1MHz

Input/Output Controls (basic Chassis—Rear)

RS-232 9-pin D-Sub Connector—19200 Baud Protocol—1 Start Bit, 8 Data Bits, 1 Stop Bit, No Parity

GPS Antenna Connector, BNC

	Locked	Holdover	Warm-up	Alarm
Green	•			
Red				•
Alternating Red.Green			•	
Red-Flash		•		

Locked	System being disciplined by GPS
Holdover	System had been disciplined by GPS but now in holdover for various reasons
Warm-up	System has been powered up and is not ready or disciplining
Alarm	System has an alarm condition

Power Input Options

Select any of the following Power Input Options:
12 VDC 11.4 to 12.5 VDC²
27 VDC 24 to 32 VDC³
48 VDC 18 to 72 VDC³

Warmup	<10 minutes, 12 Watts max.
Steady State Power Input	8 Watts max. @ 25°C
Isolation	None—Input return connected to chassis

Physical

Height	42 mm (1.65')
Width	101 mm (4')
Depth	146 mm (5.75') including connectors
Weight	0.67 Kg
Panel Color	Satin Black finish (Front Panel)

(Contact factory for mounting details of unenclosed board version)

Environmental

Temperature

Operating	-5° C to 65°C
Rate of Change	10° C/Hour
Storage	-40° C to +85° C

Relative Humidity

5% to 95 % non-condensing

Altitude

Operating	-60 m to 4000 m
Storage	-60 m to 9000 m

GPS Receiver

Civil C/A-Code Type

8 to 12 channel, independant tracking
1,575.42 MHz (L1)
C/A only

Frequency Code Acquisition Time⁴

Warm Start : < 2 min.
Cold Start : < 20 min.

OPTIONAL ACCESSORIES

- L1 Antenna Kit
- Antenna Cables
- Antenna Inline Amplifier

¹ After 48 hours of locked operation, fixed antenna location, antenna delays entered.

² 0.1V external regulation required

³ No external regulation required

⁴ 2 σ (95.5% probability)