



# PICOSYNC GPS ENGINE

PicoSync™

## OEM GPS Time & Frequency Engine

The PicoSync 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



### FEATURES

- Accuracy
  - Time: <50nS Peak (UTC)
  - Frequency: 1E-12
- Outputs
  - 1PPS
  - 10MHz Sine (Settable to TTL or other frequencies)
  - 2.048MHz ITU-T G.703 §13
- User interface
  - Standard RS-232
- Available with 12, 27, or 48 VDC Power Input
- 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, 1.5 to 7.5 dBm, BNC  
or 50 Ω, TTL level

2.048MHz - 75 Ω BNC, 1.6/5.6, etc  
or 120 Ω BNO - ITU-T G703 § 13

### Frequency Accuracy

With GPS (Locked)<sup>1</sup> 1E-12  
24 hour Average

### Time Accuracy

With GPS (Locked)<sup>1</sup> <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 ± 25°C temp Δ	<10μS
After 24 hours and ± 5°C temp Δ	<10μS

### 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

### 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

Optional SNMP Protocol Interface (1U shelf)

GPS Antenna Connector, BNC

**Alarm Conditions :** Initialization, Warm-Up, Tracked and Power Fast OCXO.

Supply	GPS	Antenna	Holdover	Bicolor LED
ON	0	0	0	Green
ON	X	0	1	Red
ON	0	1	X	Red (blinking)
ON	1	0	0	Green (blinking)
ON	1	1	0	Red/Green (blinking)
OFF/ Failure	X	X	X	Blank

0: no alarm condition or masked alarm condition  
1: active alarm condition

### Power Input Options

Select any of the following Power Input Options:

12 VDC	11.4 to 12.5 VDC <sup>2</sup>
27 VDC	24 to 32 VDC <sup>3</sup>
48 VDC	18 to 72 VDC <sup>3</sup>

Warmup	<10 minutes, 12 Watts max.
Steady State	8 Watts max. @ 25°C
Power Input 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  
Time<sup>4</sup>

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

### OPTIONAL ACCESSORIES

- L1 Antenna Kit
- Antenna Cables

<sup>1</sup> After 48 hours of locked operation, fixed antenna location, antenna delays entered.

<sup>2</sup> 0.1V external regulation required

<sup>3</sup> No external regulation required

<sup>4</sup> 2 σ (95.5% probability)