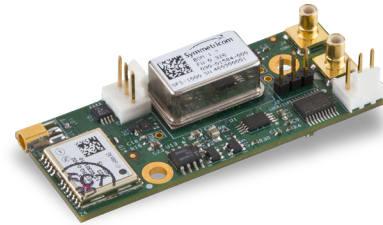


GPS-1000

10 MHz OCXO-based GPS Disciplined Oscillator



Key Features

- High-performance GPS Receiver
- Small footprint and low profile: only 1.0" x 2.5" x 0.5"; low weight and low power
- Fast warm-up
- Low phase noise
- 1 PPS output accuracy of ± 50 ns to UTC RMS (1-sigma), GPS-locked

Applications

- Unmanned Aerial Vehicles (UAV's)
- IED Jammers – fixed, mounted, dismounted
- Radar Systems
- Aircraft Guidance Systems
- Tactical Radios
- Underwater systems using GPS for initialization

The Symmetricom® GPS-1000 is a 10 MHz OCXO-based GPS Disciplined Oscillator (GPSDO), covering an operating temperature range of 0°C to +60°C. The unit features a high-performance GPS receiver that can track up to 50 GPS signals, down to levels as low as -160 dBm. The receiver is compatible with GPS, WAAS, EGNOS, and MSAS signals.

The GPS-1000 software supports airborne applications by providing avionics systems with a 3D velocity vector (velocity output for the X, Y, and Z planes). The unit can also be monitored and controlled through an RS-232 port via standard SCPI commands, and can generate NMEA-0183 output sentences for easy integration into existing system architectures.

The output signal is a 10 MHz sine wave with an amplitude of +13 dBm. The GPS-1000 also provides a single 1 PPS output which is 3.3 V DC CMOS compatible. The 1 PPS output has an accuracy of ± 50 ns to UTC RMS (1-sigma), once GPS lock has been achieved.

Because of its small size and because the GPS-1000 uses an evacuated single-oven OCXO as its holdover oscillator, it can warm up in < 1 min at +25°C. The single-oven OCXO also contributes to the very low profile height of only 0.5". Holdover stability is $\pm 11\mu\text{s}$ over a 3-hour period at +25°C with no motion. Phase noise is < -80 dBc/Hz at a 1 Hz offset, and the unit typically consumes < 1.4W of power at +25°C.

The GPS-1000 offers all of these capabilities in a package that is less than one-half the size of the smallest competitive products.

GPS-1000 10 MHz OCXO-based GPS Disciplined Oscillator

Specifications

ELECTRICAL SPECIFICATIONS

MODULE SPECIFICATION:

1 PPS Accuracy	±50ns to UTC RMS (1-sigma) GPS locked
Holdover Stability	< ±11µs over 3 hour period at +25°C (no motion or airflow)
1 PPS Output (OCXO Flywheel Generated)	3.3VDC CMOS
RS-232 Control	Full control via SCPI-99 control commands, NMEA-0183
Avionics Support	3D velocity vector (velocity output for the X, Y, and Z planes)
GPS Frequency	L1, C/A 1574MHz
GPS Antenna	Passive or active, 3.3V
GPS Receiver	50 channels, mobile, WAAS, EGNOS, MSAS capable
Sensitivity	Acquisition - 144 dBm, Tracking - 160 dBm
TTF	Cold start - < 45 sec Warm start - 1 sec Hot start - 1 sec
ADEV	1s - 1E-11
TTL Alarm Output	GPS unlock and event indicator
Warm Up Time / Stabilization Time	< 5 min to 1.0E-8 accuracy at +25°C
Supply Voltage (Vdd)	8.0V to 14.0 VDC (12 VDC nominal)
Power Consumption	< 1.8W Max, 1.35W Typ.
Operating Temperature	0°C to +60°C
Storage Temperature	-45°C to +85°C

OSCILLATOR SPECIFICATION:

Frequency Output	10MHz sine wave
10MHz Retrace	±2E-08 after 24 hrs. on, 24 hrs. off, 1 hr. on at +25°C (no GPS)
Frequency Stability Over Temperature	±2.5E-08
Output Amplitude	+13dBm ± 3dB
Oscillator Heater Warm Up Time	< 1 min at +25°C

PHASE NOISE

1Hz	-80dBc/Hz
10Hz	-110dBc/Hz
100Hz	-135dBc/Hz
1kHz	-145dBc/Hz
10kHz	< -145dBc/Hz

CONNECTIONS:

1PPS Output, 10MHz Output	
RS-232	

CONNECTOR TYPE:

SMB (SMA upon special order)
3 Pin