

# GPSDO - GPS DISCIPLINED OSCILLATOR MODULE



**GPS Referenced  
Commercial Off The Shelf (COTS)  
Multi Output 10 MHz Frequency Standard**



AS9100D Certificate Number : C0210021-AS3



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## Product Overview

The GPS Disciplined Oscillator Module is a small Commercial –Off-the-Shelf (COTS) GPSDO that has been designed to meet military requirements such as MIL-STD-188-164A.

At only 4.1” x 2.75” x 1” (104.0 x 70.0 x 26.0 mm) in size, the unit provides Stratum 1 performance. The GPSDO supplies three isolated, low noise precision 10 MHz frequency reference signal outputs. These outputs are accurate to 1x10<sup>-12</sup> when slaved to a timing supply from an internal GPS tracking receiver.

The frequency standard is also able to slave to an external 1PPS signal to steer and hold the internal oscillator and clock system precisely in time. Time and frequency information is maintained to a very high accuracy during by the disciplined internal oscillator even when no satellites can be tracked.

A serial data port is provided to report time, date, position, and GPS satellite health and signal strength. The GPSDO module also has dual power supply inputs and can operate off either supply input.

Optional capabilities include automatic interface to an external military GPS receiver such as the Defence Advanced GPS Receiver (DAGR), Ethernet Interface for NTP time service and SNMP status monitoring. Standard frequency output is 10 MHz, but other frequencies are also possible.

## Key Feature Summary

### Timing & Interfaces

- 3 Isolated Low Phase Noise 10MHz Outputs
- Internal GPS Tracking Receiver
- External 1PPS Input
- Small Footprint Designed for easy Integration
- Disciplined High Stability OCXO

### Outputs

- 3 Isolated Low Phase Noise 10MHz Outputs
- Serial Time Of Day Message TOD
- 1 PPS



Also of interest may be our Miniature GPS reference oscillator module



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## Specifications



Specifications - GPSDO	
<b>Reference Signal Inputs - 1PPS</b>	<b>Details</b>
Connectors	1 x MCX Connector
Amplitude	0V to 5V - 50 Ohms
<b>Reference Signal Inputs - GPS</b>	
Connectors	1 x MCX Connector
Receiver Type	Satellite Signal : 12 Channels : GPS L1 1575.42 Mhz / Satellite Code : C/A code 1.023 MHz
Sensitivity	155dBm
<b>Reference Signal Inputs - HQ</b>	
Optional Have Quick Input Ref	1 x MCX Connector : per ICD-GPS-060
<b>Accuracy Details</b>	
Time Accuracy - GPS	< 30ns
Time Accuracy - 1 PPS	< 30ns
Holdover	< 20µs in 24 hrs
<b>Power Supply Details</b>	
Connectors	2 x Headers, diode OR'd together
Power	12V DC or 15V DC Supply (Specify at order point) Warm up consumption : 15 Watts    Steady State : 5 Watts
<b>Outputs</b>	
1 PPS	1 x MCX Connector : 0 - 5V DC into 50 Ohms - Complies with ICD-GPS-060
10 MHz	3 x MCX Connectors : 2 off Outputs at 7dBm +/- 2dBm 1 off Output at 15dBm +/- 2dBm (requires + 15V supply)
<b>I/O Connector</b>	
Interface Signals	Power A ( 12 or 15V DC)                      Power B ( 12 or 15V DC) Alarm Out    1 PPS Input Reset    Force Holdover / HQ input RS232    Locked
<b>Environmental</b>	
Temperature	Operational : -20°C + 70°C / Storage -40°C to + 85°C.
Humidity	95 % non condensing
Altitude	Operational to 10,000 ft - transit not operational to 50,000 ft
<b>Physical</b>	104mm x 70mm x 26mm
<b>Compliance</b>	CE Approved - EMC Emissions to EN55022 as EN55024 - FCC Part 15B, Class A

Phase Noise / Short Term Stability (10MHz)	
SSB Phase Noise	dBc/Hz
1 Hz	-90
10 Hz	-120
100 Hz	-145
1 KHz	-151
10 KHz	-153
100 KHz	-155
STS (Allan Variance) (after 24hrs)	
1 Sec	< 8.0 x 10-12
10 Sec	< 1.0 x 10-11
100 Sec	< 1.5 x 10-11
1000 Sec	< 1.5 x 10-11

# Satisfied customers include..

ABB Singapore

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BBC

Carillion Rail

CMC Engineering Malaysia

EDF Energy

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