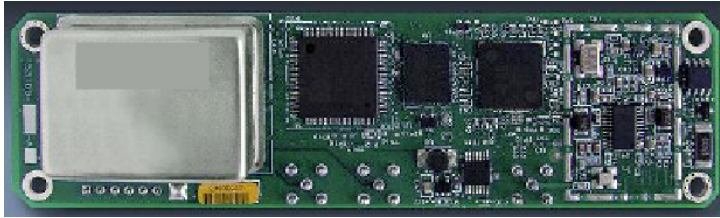


MD-996-0001
Disciplined Oscillator Module



Features

- 1PPS and 10 MHz output signals
- 15nSec accuracy (one sigma)
- Automatic self-survey for improved timing accuracy
- TRAIM (Timing Receiver Autonomous Integrity Monitoring) assured high PPS integrity
- Contact factory for hold over specifications

Description

The MD-996 Disciplined Oscillator Module uses Vectron's high quality Ovenized Quartz Crystal Oscillators (OCXO) with Trimble's proven Mini-Thunderbolt™ platform. This module has an embedded 12-channel GPS receiver and provides both 10MHz and 1 PPS signal output that is synchronized to GPS or UTC time. The MD-996 provides 15 nanosecond accuracy and tight holdover performance. The MD-996 can be used in a variety of precision timing applications and as always, Vectron is capable of customizing a solution for any application.

Application

- Digital Video Broadcast
- Telecommunications time synchronization
- Satellite communication frequency

references

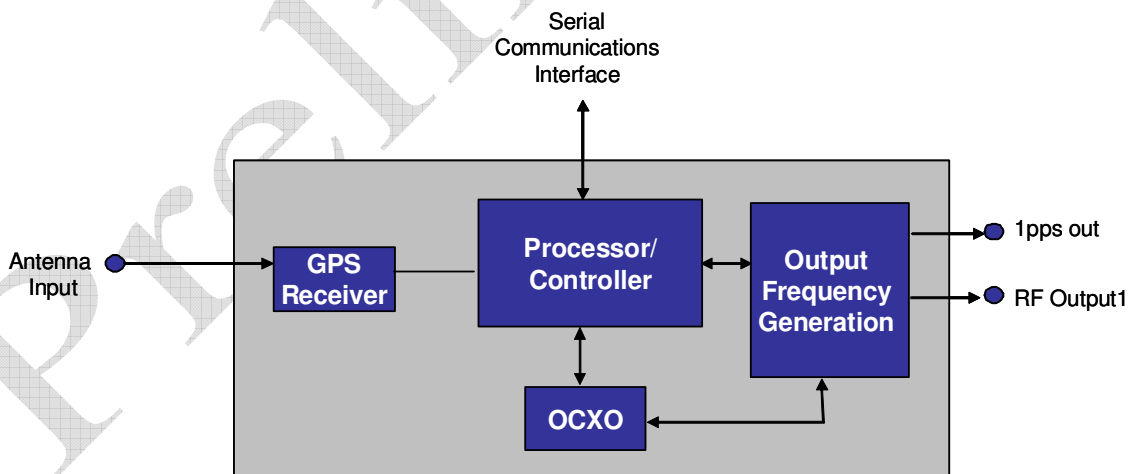


Figure 1. Functional Block Diagram

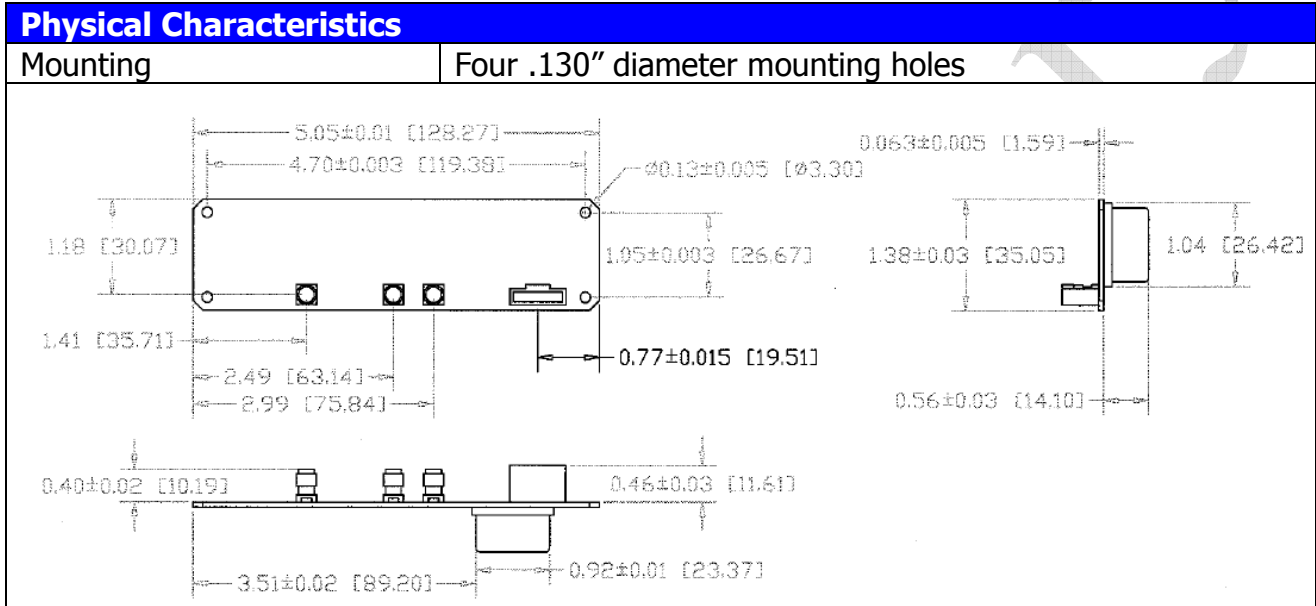
MD-996-0001 Disciplined Oscillator Module

Performance Specifications ¹	
General	L1 frequency, C/A code (SPS) 12-channel, continuous tracking receiver
Update Rate:	1 Hz
1 PPS Accuracy	GPS 15 nanoseconds (one sigma)
Output Frequency	10 MHz
Phase Noise	10 Hz -120 dBc 100 Hz -135 dBc 1 KHz -145 dBc 10KHz -145 dBc 100KHz -145 dBc
Holdover	27 us for 24 hours with 5 C temperature delta
Stability	+/- 50ppb from 0 to 60C when not in tracking

Interface Specifications	
1 PPS	Connector: SMA-f (J3) TTL levels into 50 ohms 10 microsecond-wide pulse with the leading edge synchronized to GPS within 20 nanoseconds (one sigma) in static, time-only mode. Rising time: <20 nanoseconds Pulse shape affected by distributed capacitance of interface cable/circuit.
10 MHz	Connector: SMA-f (J2)
Antenna Interface	SMA-f (J4)
Power and I/O	Connector: Molex 70543-0005 (6-pin) (J1) Pin 1- NC Pin 2- GPS TXD 3.3V CMOS Level Pin 3- GPS RXD 3.3V CMOS Level (5V tolerant) – Pulled to 3.3V through a 10k Ohm resistor Pin 4 – Ground Pin 5 - +V Antenna – Supports 2.7VDC to 5.5VDC @ up to 100ma. Pin 6 - +5V± 0.25V @ <750ma (cold) and <350ma (warm)
Serial Protocol	Trimble Standard interface Protocol (TSIP) binary protocol @ 9600, 8-None-1

MD-996 Disciplined Oscillator Module

Environmental Specifications	
Operating Temp	0 °C to +60 °C
Storage Temp	-40 °C to +85 °C
Operating Humidity	5% to 95%, non-condensing
Operating Altitude	18,000 m



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