

Micro-Transcoder™

10-Channel GPS Simulator

Defense | 5G Communications | SATCOM | Transportation
Data Center Energy | Financial | Critical Infrastructure

The Micro-Transcoder is a full-constellation, stand-alone, real-time 10-channel GPS simulator with a built-in GPS Disciplined Oscillator (GPSDO).

The Micro-Transcoder uses the output of any secure PNT source or concurrent GNSS receiver and encodes (RF modulation) the baseband PNT and UTC timing information into a standard GPS L1 RF signal. This RF signal can then be received by any legacy GPS receiver.

The Micro-Transcoder is a 1-inch square module that can be used to upgrade existing GPS equipment with secure and assured PNT capabilities.

Highlights

- Embedded NMEA encoding to GPS L1 RF
- Upgrade existing GPS systems to INS, SAASM, M-Code, Concurrent GNSS
- 0.97 x 0.97 x 0.4 inches in dimension, 0.95 W
- 5 ns timing and 1 m positioning accuracy typical.
- Functions as a GPS firewall system to harden against spoofing and jamming
- Can be used as a Low-Cost General Purpose GPS Simulator
- Leap second and Week Number Roll Over testing of customer GPS receivers
- Serve as an alternate PNT source during fully GPS denied operation



Micro-Transcoder

Typical Electrical Specifications

Module Specifications	Description
Data/Power Connectors	Standard DIP 100 mil footprint, can be soldered or socketed into customer PCB
Built-in GNSS monitoring receiver	72 channel gen-8 GNSS receiver
Outputs	One 3.3 V CMOS 1 PPS output, one 10 MHz CMOS 3.3 V output, disciplined by external 1 PPS reference, One RF GPS L1 C/A code, -105 dBm to -128 dBm
Spectral Purity (1 MHz to 13.2 GHz)	< -30 dBc in-band (L1, ±20 MHz), < -70 dBm out-of-band
Harmonics of L1 (1.57542 GHz)	< -140 dBm
Serial Control	SCPI-99 Control at 9.6 K, 19.2 K, 38.4 K, 57.6 K, 115.2 K
External GNSS receiver compatibility	Any NMEA compatible source, direct control of Rockwell Collins GB-GRAM and MicroGRAM SAASM GPS, and u-Blox GNSS receivers, supports Sateltes/Iridium-STL receivers
SCPI Control/Monitoring Port	Compatible to any terminal program, SimCon, and GPSCon, NMEA output sentences
Operating Temperature	-40°C to +75°C
MTBF	>600,000 Hours

NOTE: Specifications subject to change without notice.

Product Ordering Information

VIAMI offers the Micro-Transcoder in the following configurations:

Product Number	Micro-Transcoder Configurations	TCXO	High Power (HP)
1005240	Micro-Transcoder w/o TCXO - RoHS		
1005220	Micro-Transcoder w/TCXO - RoHS	•	
1005221	Micro-Transcoder HP w/ TCXO - RoHS	•	•

VIAMI also offers the following evaluation kits:

Product Number	Evaluation Kits	Kit Contents
1005250	Micro-Transcoder TCXO Evaluation Kit	<ul style="list-style-type: none"> • Micro-Transcoder module • LC XO PCBA • Micro-Transcoder Top Shield • Micro-Transcoder Bottom Shield
1005278	Micro-Transcoder Evaluation Kit w/o Micro-transcoder	<ul style="list-style-type: none"> • Micro-Transcoder Evaluation Board



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