

# Secure $\mu$ PNT STL-1000

## LEO Receiver Module

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

### Solving Industry Challenges

The Secure  $\mu$ PNT™ STL-1000 is an embedded PNT module that utilizes the M.2 B-Key form factor, making it the ideal solution for applications that require an extremely small, secure, resilient PNT receiver.

### Key Features

- M.2 B-Key form factor
- MEMS TCXO 10 ppb
- Secure STL Receiver for assured PNT outputs
- 1 PPS Output Accuracy <65 ns rms to UTC (STL)
- CMOS 3.3 V, 10 MHz and 1 PPS Output signals
- External 1 PPS Input Signal Support for disciplining
- SCPI and NMEA Serial Interfaces
- Field Upgradeable Firmware
- Low Power Operation (typically  $\leq 1.0$  W)
- Compatible with GPSCon and JLTerm control software

### Typical Specifications

#### Secure $\mu$ PNT-1000

##### 1 PPS Stability

GPS Locked	<15 ns rms GPS locked (After 48 Hr Lock)
STL Locked	<65 ns rms STL locked <sup>1</sup>
NMEA Messages	GGA, RMC, ZDA, GSV, PASHR, GSA
GNSS Receiver	GPS/GLONASS/Galileo/BeiDou/QZSS/SBAS
STL Receiver	3.3 V antenna-power built-in, custom-designed receiver

##### GPS Sensitivity

Acquisition	-148 dBm
Tracking	-167 dBm

##### STL Sensitivity

Tracking	-120 dBm, (25 dB antenna LNA gain assumed)
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#### MEMS Oscillator Specifications

Frequency Output	10 MHz CMOS 3.3 V
Frequency Stability over Temperature in Holdover mode	$\pm 1.0\text{E}-08$ , -40 to +80°C
10 MHz Accuracy	$< \pm 1.5\text{E}-10$ , after 20 minutes with STL <sup>1</sup> or GNSS
Phase Noise	$< -75$ dBc/Hz @1 Hz

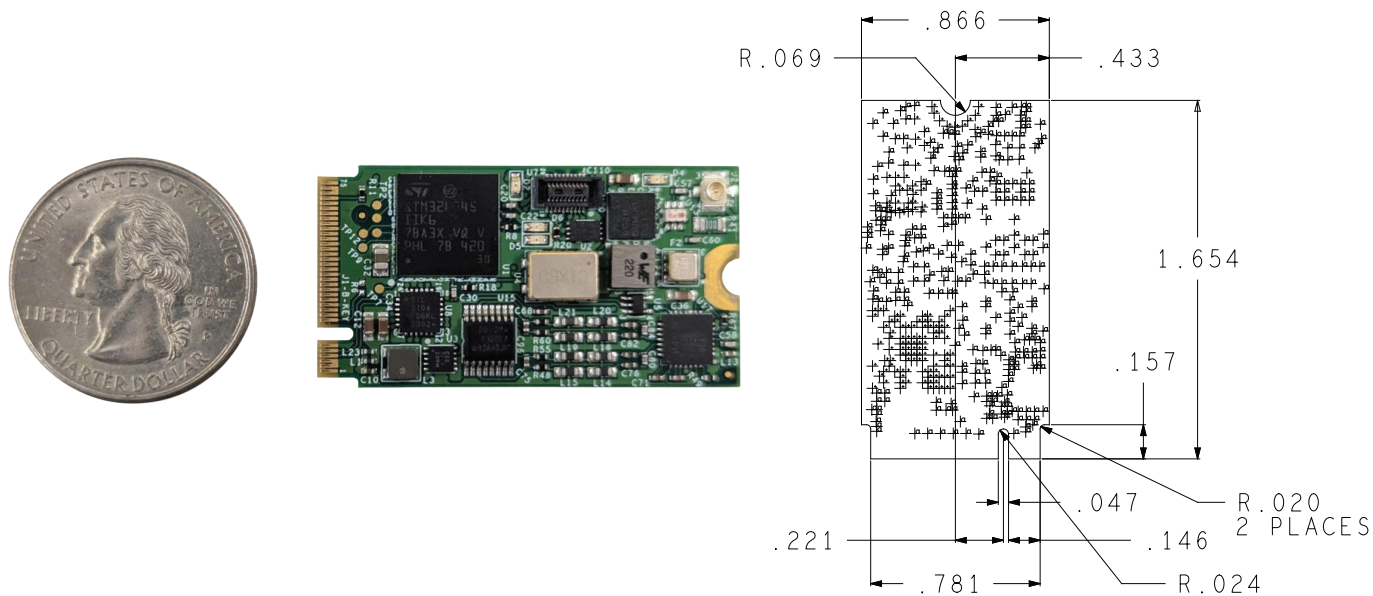
## Typical Specifications continued

I/O Signals and Connectors	
Signal	Connector/Description/Functions
RF Antenna	Miniature U.FI Coax, Combined Input for STL and GNSS
10 MHz Output	Auxiliary Hirose Connector
	CMOS 3.3 V
10 MHz Input	Auxiliary Hirose Connector
	External 10 MHz Reference Input Signal
1 PPS Output	Auxiliary Hirose Connector
	UTC (GPS) and UTC (STL) synchronized, CMOS 3.3 V, 200 ms pulse-width
1 PPS Input	Auxiliary Hirose Connector
	External 1 PPS Reference Input Signal
Serial Control	Auxiliary Hirose Connector
	9,600 to 921,600 bps
	TTL NMEA out, SCPI Control/Monitoring
	External CSAC/Rb Oscillator Control
	Status Signals
	In Situ Firmware Updates
M.2 USB	B-Key 2242 Connector
Power	
Power Consumption	Typical 1.0 W
Supply Voltage (Vdd)	+3.3 V: +0.2 V, -0.1 V
Environmental	
Temperature	
Operating Temperature	-40°C to 85°C
Storage Temperature	-45°C to 95°C
Regulatory and Compliance	
Regulatory Standards	CE/UKCA
	RoHS/WEEE
	REACH
	Canadian Standards Association (CSA)
	Radio Equipment Directive (RED)

Typical Specifications continued

Physical	
Dimensions	
Width	0.87 inch/22 mm
Depth	1.65 inch/42 mm
Height	0.09 inch/2.3 mm
Weight	0.128 oz/3.6 grams

<sup>1</sup> STL Lock capability requires active subscription to Iridium based SecureTime altGNSS LEO services



Ordering Information

Catalog Number	Description
22187422-000	Secure μPNT STL-1000 LEO Receiver
SecureTime <sup>SM</sup> Service Options	SecureTime altGNSS LEO-S
	SecureTime altGNSS LEO LOCUS



Contact Us: +1 800 835 2352 | [avcomm.sales@viavisolutions.com](mailto:avcomm.sales@viavisolutions.com).

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