

Mini-JLT

GNSS variant with GPS, Glonass, Galileo, BeiDou, QZSS

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

The Mini-JLT™ was designed to be form-fit-function compatible to the Trimble units, providing a replacement for the end-of-life Trimble Navigation Limited Mini-T™ GPSDO units.

In addition to providing capabilities found in the Mini-T™ GPSDO, the Mini-JLT also provides additional features such as a 1 PPS external input, 3-axis on-board accelerometer, USB-communication, internal antenna power supply, wide-range main power supply, extended temperature range, lower overall height (0.5 inches vs. 0.8 inches above the PCB), a significantly improved thermal stability, Allan Deviation, Phase Noise performance.

The unit also adds support for NMEA and SCPI communication commands and removes support for TSIP proprietary commands.

Highlights

- Form-Fit-Function compatible to Trimble Mini-T™
- Includes a 72-channel Concurrent GNSS receiver
- USB and TTL serial communication
- Additional 10 MHz +13 dBm output port
- TTL LOCK/EVENT# and GPS-FIX indicator



Mini-JLT

Typical Electrical Specifications

Module Specifications	
1 PPS Stability	<±10 ns to UTC RMS (1-Sigma) GPS Locked (DOCX0)
Serial Control	GPS NMEA and Status Output, SCPI-99 control, USB and TTL Port
GPS Frequency, Antenna Power	C/A 1574 MHz, 3.3 V antenna-power built-in, 5 V external supply option
GPS Receiver	72 Channels, GPS, Glonass, Galileo, BeiDou, QZSS, SBAS capable
Sensitivity	
Acquisition	-148 dBm
Tracking	-167 dBm (GPS and Glonass)
GPS TTFF	
Cold Start	<30 sec
Warm Start	2 sec
Hot Start	2 sec
ADEV SOCX0	
1 s	<7E-012
1Ks	<7E-011
10K s	<8E-012 (25°C, no motion/airflow)
ADEV DOCX0 option	
1 s	<5E-012
1Ks	<3E-011
10K s	<3E-012 (25°C, no motion/airflow)
Holdover at 25.0°C, no airflow, no motion/vibration, 5 days GPS locked	<5 µs in 5 hours (SOCX0), <4 µs in 24 hours (DOCX0)
Warmup and Stabilization Time	<12 min at +25°C to <1E-09 Accuracy to GPS
Supply Voltage (Vdd)	5 V ±1.0 V
Power Consumption	<2.4 W (SOCX0), <3.2 W (DOCX0) @25°C, <8 W during warmup
Operating Temperature	-45°C to +80°C (SOCX0), 0°C to +75°C (DOCX0)
1 PPS External Reference Input	Supports an optional external 1 PPS input on pin 1 of power connector
10 MHz Outputs	1x 10 MHz at +5 dBm, 1x optional 10 MHz at +13 dBm, ±3 dB
3-axis Accelerometer	Up to 20 readings/s, can be used for electronic g-compensation option
Oscillator Specification	
Frequency Output	10 MHz at +5 dBm and +13 dBm
10 MHz Retrace	<±1E-09 After 1 hour @ +25°C (no GPS)
Frequency Stability over Temperature over 24 hours	±6E-09 (SOCX0), ±0.5E-09 (DOCX0), <1E-012 over 24 hours (with GPS)
Output Harmonics, Spurs	<-50 dBc/Hz, <-115 dBc/Hz

Typical Electrical Specifications continued

Oscillator Specification continued			
OCXO Aging (fully compensated by GPS)	<±0.1 ppm per year without GPS		
Phase Noise @ 10 MHz		<i>SOCXO</i>	<i>DOCXO</i>
	1 Hz	-90 dBc/Hz	-94 dBc/Hz
	10 Hz	-128 dBc/Hz	-132 dBc/Hz
	100 Hz	-148 dBc/Hz	-142dBc/Hz
	1 kHz	-153 dBc/Hz	-150 dBc/Hz
	10 kHz	-155 dBc/Hz	-152 dBc/Hz
	100 kHz	<-155 dBc/Hz	-152 dBc/Hz
Connections	Connector Type		
2x 10 MHz Sine Wave Out (second output not stuffed), GPS Antenna	SMA		
+5 V Power, ext. 1 PPS input, TTL serial port, Ant. power (3.3 V to 5.5 V)	Molex PN 70543-0005		
USB Communication	Mini USB, 2.0		

NOTE: Specifications subject to change without notice.

Product Ordering Information

VIAMI offers the Mini-JLT in the following configurations:

Number	Description	SOCXO	DOCXO	10 MHz	RS232	SMA	Low G
100306-G2	MINI JLT GNSS SOCXO - RoHS	•					
100311-G2	MINI JLT GNSS SOCXO w/J5 Connector - RoHS	•					
22174873	MINI JLT GNSS SOCXO R/A SMA - RoHS	•				•	
22174874	MINI JLT GNSS SOCXO RS232 - RoHS	•			•		
22174875	MINI JLT GNSS DOCXO RS232 - RoHS		•		•		
22174865	MINI JLT DOCXO R/A 10MHz - RoHS		•	•			
22174866	MINI JLT GNSS DOCXO - RoHS		•				
22174867	MINI JLT GNSS DOCXO Low G - RoHS		•				•
22174868	MINI JLT DOCXO 6P Header MCX - RoHS		•				



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