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Find the *Astronics / EADS / Racal PXIe-3352* at our website: ***Click HERE***



Astronics Test Systems

PXIe-3352

Rubidium/GPS Frequency Standard

The Astronics Test Systems PXIe-3352 frequency standard module sets a new standard for high density functionality in a PXI module by combining a Rubidium oscillator with a GPS receiver into a single, compact instrument.

Key Features

- **Dual width PXI Express module for highest possible system density**
- **Sine and square wave outputs provided**
- **Rubidium oscillator can run freely or lock to a built-in GPS receiver**
- **External power input keeps Rubidium oscillator powered during system shutoff**

Product Information

The PXIe-3352 is a Rubidium/GPS module for use in PXI hybrid and PXI Express slots in a PXI mainframe. It provides a basic accuracy of $5e^{-11}$ in free-run mode, but, given an external GPS antenna (not included) and a view of the sky, can be disciplined to GPS satellites for improved timing accuracy.

GPS Disciplining

The PXIe-3352 uses the 1PPS output from a GPS receiver to discipline the Rubidium oscillator. This technique results in improved long-term stability comparable to that of a Cesium frequency standard.

External DC Power Supported

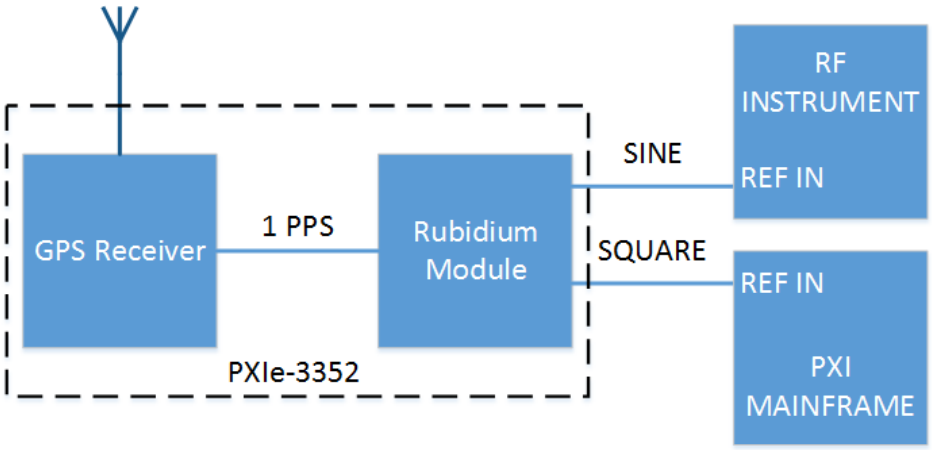
If the PXI mainframe is powered down, power may still be applied to the Rubidium oscillator via a front panel external DC power input. This keeps the Rubidium oscillator very stable over time and eliminates the effects of retrace. The GPS receiver maintains its location information during power down, saving the time it takes for the receiver to do a position fix, because it has an internal battery to power its SRAM and real time clock.

Rubidium Oscillator Control

Control of the Rubidium oscillator is available to enable or disable outputs or to query it for information such as serial number, operating hours, operating temperature, event history, self-test and other performance indicators.

Holdover

When GPS satellites are not available, the system performance reverts to that of a stand-alone Rubidium (this period is called the holdover period).



PXIe-3352 System Configuration Example

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Specifications

Note: The Astronics Test Systems policy is one of continuous development and improvement. Consequently, the equipment may vary in detail from the description and specifications in this publication.

Output Characteristics

Output Frequency
- 10 MHz

Output Channels
- Sinewave Output Channel
- Squarewave (CMOS) Output Channel

Amplitude
- Sine Wave: 10 dBm ± 2 dBm into 50 Ω
- CMOS: 2.5 V into 10 kΩ

Phase Noise (sine output)
- 10 Hz offset: -102 dBc/Hz
- 100 Hz offset: -135 dBc/Hz
- 1 kHz offset: -145 dBc/Hz
- 10 kHz offset: -150 dBc/Hz

Spectral Purity (sine output)
- Harmonics: <-44 dBc (up to 70 MHz)
- Spurious: <-80 dBc (10 Hz-100 kHz from carrier)

Timebase Characteristics

Initial Accuracy (@ 25° C)
- 5 x 10^{-11}

Stability
- Frequency Drift: 5 x 10^{-11}/month
- Frequency Retrace: < 5 x 10^{-11}
- Allan Variance (1 s): 3 x 10^{-11}
- Allan Variance (100 s): 5 x 10^{-12}

Warm Up (@ 25° C)
- <4 minutes to lock
- <5 minutes to reach 5 x 10^{-10}

GPS Receiver Characteristics

Receiver Architecture
- Tracking: 22 parallel channels
- Acquisition 66 simultaneous satellites

Operating Frequency
- L1 (1575.42 MHz), C/A code

Receiver Sensitivity (typical)
- Tracking: -161 dBm
- Cold Start: -143 dBm

Timing Accuracy (1 pps)
- ± 11 ns

Acquisition Time
- Hot: <1 s, typical
- Warm: <30 s, typical
- Cold: <32 s, typical

Interface

Power Requirements
- +3.3 VDC at 1.2 A
- +12 VDC at 2.5 A

Front Panel I/O and Indicators

Outputs (SMA)
- Sine Wave: 10 MHz, 10 dBm, 50 Ω
- Square Wave: 10 MHz, 2.5 V, 10 kΩ
- 1 PPS: 3.3V, 100 ms wide

Inputs
- External Rubidium Power: 12 V @ 1.5 A
- GPS Antenna (SMA): 50 Ω
- 1 PPS (SMA): 3.3V CMOS

Status Lights
- Red: Sysfail
- Amber: Access
- Green: Rubidium locked

Software

Driver Installations
- VXI*plug&play* WIN32, WIN64, LabWindows/CVI, LabVIEW, Visual Studio

Executable
- Interactive Control Soft Front Panel

Environmental

Temperature/Altitude
- Operating: 0° C to 55° C/10,000 ft
- Storage: -40° C to 75° C/15,000 ft

Relative Humidity
- 5 to 95%, non–condensing <30° C
- 5 to 75%, non–condensing <40° C

Mechanical
- Shock: 30 g, 11 ms, ½ sinewave
- Vibration: 0.013 in (pk-pk), 5 to 55 Hz
- Bench Hanling: 4-inch drop at 45°

CE Certifications
- Emissions/Immunity: EN61326: 1997 + A1: 1998, Class A
- Safety: EN61010-1: 1993 + A2: 1995

MTBF (MIL-HDBK-217 FN2, GB GC, 25°)
- 35,740 hrs

Mechanical

Weight
- 1.26 lbs (0.567 kg)

Dimensions
- 2 Slot Width PXI Express Module

Ordering Information

408673 : Astronics Test Systems PXIe-3352

Rubidium/GPS Frequency Standard, NI Reference: 143115A-01L

The CE Mark indicates that the product has completed and passed rigorous testing in the area of RF Emissions and Immunity to Electromagnetic Disturbances, and complies with European electrical safety standards.

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