Dynetics Modular Instrumentation System
High-Dynamic GPS Receiver Module

This module provides the MIS with differential quality GPS capability at dynamic levels consistent with missiles and high-performance aircraft. When used as part of the Dynetics MIS TSPI system, sub-meter accuracy is achievable.

Receiver

Receiver Type
- C/A L1 (1575.42 MHz)
- 12 parallel channels

RF Reception Sensitivity
- -160 dBW

Signal Acquisition
- 4 satellites: < 3 sec
- All satellites in view (90%): < 7 sec

Time To First Fix
- Hot: < 1 sec
- Warm: < 38 sec
- Cold: < 45 sec
- Reacquisition: < 0.5 sec
- Hybrid: < 3 sec

RF Front-End

Low Noise Amplifier (LNA)
- Gain: 14.1 dB
- Noise figure: 1.45 dB

Surface Acoustic Wave (SAW) Filter
- Absolute attenuation
  L1 - 40 MHz: 38.9 dB
  L1 + 40 MHz: 58.8 dB
- Passband VSWR: 1.4 dB
- Insertion loss: 2.68 dB

Interface
- Compatible with MIS architecture
- Compatible with data logger for logging application

Max Velocity
- > 1600 m/sec

Max Altitude
- 30,000 m

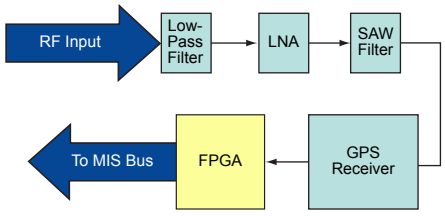
Max Acceleration
- 25 g (navigation)
- 50 g (hybrid)

Max Jerk
- 250 g/sec for 100 msec (navigation)
- 500 g/sec for 100 msec (hybrid)

Protocols
- RS-232 custom
- Navigation: PVTM, MACM
- Hybrid: 8003

Update Rate
- 15.625 Hz (64 msec)

Data Redundancy
- Current and delayed GPS information
- Forward-error correction



Physical

Diameter	2.375” min
Height	0.33” min
Weight	35 g min

High-dynamic GPS Receiver Module Highlights
- Onboard real-time GPS positioning
- Acquisition and tracking under very high accelerations with fast time to first fix
- High-accuracy differential positioning capable in real-time or for post-mission analysis
- Sends current GPS data, delayed GPS data, and forward-error correction

This module can be used in navigation mode at up to 25-g acceleration. It can also be used as part of a hybrid GPS system when combined with the Ground Segment Processor. In hybrid mode, code and carrier phase measurements are produced in the mobile receiver, with the navigation solution reconstructed in the ground segment. In this mode, the receiver can obtain fix in 1.5 sec (typical) and track at up to 50-g acceleration.

For More Information:

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