

## Miniature GPS/IRIG Position/Time Code Reader and Generator Module with Real Time Clock and Multiple Battery Backup Options for the MSSR-2010-SA & MSSR-110C Data Recorders



### Description

The MGPS-101M module provides IRIG-B time code capability as well as GPS position, velocity and course data to the MSSR-2010-SA / MSSR-110C Miniature IRIG-106 Chapter 10 Multiplexer with Solid State Recorder. The module accepts GPS signals from an external, active L1 or L1/L2 band GPS antenna (user provided). Once its integral GPS receiver is synchronized to the external GPS source, the MGPS-101M module generates all the internal signals needed to support Chapter 10 packet time tagging. The module also accepts either AC (modulated) or DC (RS-422 differential TTL) time inputs with separate connector contacts for each. Any of these three time sources may be designated in software as the module's selected time source. When receiving GPS signals, the MGPS-101M provides accurate position, course and speed updates every 200 ms (5 updates per second) that may be included in Chapter 10 data packets along with IRIG and module status information. The module also generates IRIG-B AC and DC time code outputs for cascading purposes.

Also included is an on-board Real Time Clock (RTC) with a variety of battery backup options, enabling the unit to provide actual time of day when the selected GPS or IRIG time source is unavailable. The RTC automatically re-synchronizes itself to the module's selected time source once it becomes available. In addition, an on-board ADC measures and encodes the internal system temperature and voltage rails within the host stack. When IRIG or GPS signals are not available, module/RTC time may be set through the system overhead by ASCII commands.

### Features

- GPS/IRIG time code reader/generator module for Chapter 10 data recorder
- Compatible with the MSSR-2010-SA / MSSR-110C Miniature IRIG-106 Chapter 10 Multiplexer with Solid State Recorder.
- Integral GPS receiver
- Accepts IRIG-B AC or DC inputs
- Time compatible with IRIG 106-11
- Generates IRIG-B, AC and DC outputs
- Supports Chapter 10 packet time tagging
- Chapter 10 Data Recording Options
  - TSPI (GPS Time, Space, Position, Information) data packet
  - TTC defined data packet incorporating GPS, IRIG and system data
- Generates status words for recording in TTC defined packets
- Can provide latitude, longitude, altitude, velocity and course data
- New position/velocity/course data every 200 msec. (5 updates/sec.)
- On-board Real Time Clock (RTC)
  - Provides actual time when GPS/IRIG time source is unavailable
  - Automatically re-syncs to GPS/IRIG time every 10 sec.
- Battery backup provisions for RTC
  - 250 mA-h primary Li cell on internal daughter board
  - 1000 mA-h primary Li cell in MBBU-2001 module
  - VBATT voltage rail, supplied by external battery
- Seamless "Flywheel mode" operation (runs on internal oscillator) when selected GPS or IRIG time source is unavailable
- Windows Based Setup Software Included

### Applications

- Flight Test Instrumentation
- Wideband Testing, Structural Analysis, ...
- Physical Research and Experimentation

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### MGPS-101M Datasheet

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