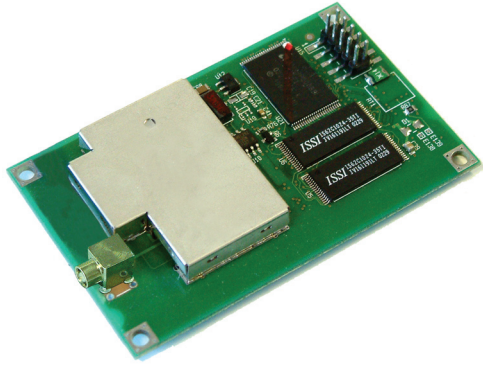# NAVMAN

Jupiter-T

12-channel GPS Time and Frequency Reference

Jupiter-T is designed specifically for stationary applications that require the best possible relative time accuracy between adjacent sites, such as wide area networks (WAN), telecommunication, transport or utility (SCADA) networks and E-911 caller location systems.

With the harsh reception realities of the dense urban environment in mind, Jupiter-T incorporates 12 fully independent channels for an all-in-view solution offering the highest possible accuracy.

Designed for autonomous operation, no external aiding is required. At power-up, Jupiter-T performs a self-survey to precisely determine its exact position. Jupiter-T then automatically transitions to a position-hold mode for superior timing performance.

To ensure high reliability and accuracy, Jupiter-T incorporates a robust T-RAIM (Time-Receiver Autonomous Integrity Monitoring) algorithm. T-RAIM enables the receiver to validate the time solution derived from GPS and ignore inaccurate satellite signals.

Jupiter-T is form, fit and function compatible with the majority of GPS timing receivers currently in use. This enables backward compatibility with many systems and offers the ability to utilise existing designs on new products. Standard interface includes Navman serial interface protocol (compatible with Conexant serial interface protocol) and a legacy protocol for drop-in replacement in many existing systems. Selected NMEA-0183 messages are also supported.

Features

• 1 PPS within 25 ns of GPS or UTC time (user selectable)

• automatic self-survey and position hold

• scalable T-RAIM

• 12 channel all-in-view solution for best accuracy

• 1 PPS that can be offset in 1 ns steps

• 10KHz coherent to rising edge of 1 PPS

• last known position and satellite information retained in EEPROM to reduce acquisition time

• on-board Flash enables in-field reprogramming

• on-chip LNA supports active orpassive antenna

• –40ºC to +85ºC thermal operating range

Related documents
• Data sheet LA010050
• Development kit: Quick start guide LA010088
• Development kit: Guide LA010089
• Designer's guide MN002000
• Labmon application note LA010103
• Timing Application Software application note LA010105

SiRF®
Powered

NAVMAN

Product specifications

Receiver architecture

- 12-channel, L1 1575.42 MHz
- C/A code (1.023 MHz chip rate)
- code-plus-carrier tracking (carrier-aided tracking)
- stationary operation only

Tracking capability

- 12 satellites simultaneously

Accuracy

- horizontal accuracy: better than 2.8 m (CEP), 4.9 m (2 dRMS)
- 3D accuracy – better than 5m (SEP)
- time within 25 ns 1 sigma of GPS (UTC) time in position-hold mode

Acquisition/re-acquisition performance

- hot start: 18 seconds (with valid almanac, time, position and ephemeris)
- warm start: 48 seconds (with valid almanac, time and position)
- cold start: 120 seconds (with valid almanac)

Datums

- 18 standard datums, 5 user defined, default: WGS-84

On-board filtering

- L1 –75 MHz, –30 dB
- L1 +50 MHz, –20 dB

Environmental

- operating temperature: –40ºC to +85ºC
- humidity: up to 95% noncondensing
- altitude: –304 m to 18,000 m

Serial interfaces

- Navman Binary Interface Protocol (compatible with Conexant Binary Interface Protocol)
- Custom protocols optional
- Selected NMEA-0183 messages

Outputs

- 1 PPS TTL into 50 Ohms coherent with GPS (UTC) time
- 10 KHz TTL coherent with 1 PPS
- +5.0 VDC (max 80 mA) to active GPS antenna

Electrical

Primary power
- +5.0 VDC regulated

Power consumption
- 195 mA (typical)

Physical

- dimensions: 50.8 x 82.6 x 16.3 mm
- weight: 35 g

Connectors

- data/power, 10 pin (2 x 5) unshrouded header on 2.54 mm centres

Ordering information

- **TU60-D120-001** Jupiter-T, Motorola command set default with Navman Binary, fully enclosed RF shield, RA OSX
- **TU60-D120-031** Jupiter-T, Motorola command set default with Navman Binary, RA OSX
- **TU60-D120-041** Jupiter-T, Motorola command set default with Navman Binary, Straight OSX
- **TU60-D120-011** Jupiter-T, Navman Binary default code, RA OSX
- **TU60-D120-021** Jupiter-T, Navman Binary default code, Straight OSX

For more information, to order, or to discuss your GPS solution requirements, contact your local distributor or Navman OEM.

Navman OEM
Web: www.navman.com/oem
Email: oem@navman.com

Your Navman OEM distributor: