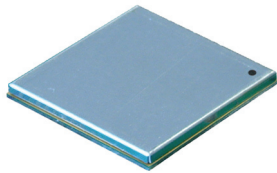


## Navman Jupiter 20

### Surface mount 12-channel GPS receiver module



Navman's latest Jupiter family GPS module continues to build on the renowned performance of the highly successful Jupiter product line. Incorporated in a surface mount design, system designers and integrators can readily utilise the 12-channel all-in-view navigation solution in a wide range of applications. Enhancing the established technology of the SiRFstarII chipset, the Navman Jupiter 20 is ideal for more demanding applications, such as vehicle tracking in dense urban areas. The adopted interface configuration allows its usage in many existing devices and ready incorporation in to legacy designs. Protocols supported are SiRF Binary and selected NMEA-0183 messages.

Offering the features and performance that you'd expect from a SiRFstarII based device, the Jupiter 20 also has Dead Reckoning capability in a closely coupled solution, all in the same compact form factor due to Navman's highly developed DR capabilities. With lower power consumption, Flash memory, flexibility of active or passive antennas and high accuracy combined with the small form factor, this is one of the most flexible high performance Jupiter GPS modules ever offered.

Available in three configurations:

#### Standard — Jupiter 20

For most applications using GSW2.3 software.

#### High Sensitivity — Jupiter 20 S

Available with XTrac software for general navigation in low GPS signal level situations.

#### Dead Reckoning — Jupiter 20 D

Essential for high accuracy vehicle applications, when view of the satellites is lost, such as in an urban environment or tunnel, an accurate solution can be maintained until the satellites are re-acquired. Achieved through the aid of sensors such as a gyro for heading, wheel tick for speed and a reverse indicator, the sensors are also continuously calibrated against GPS.



### Features

- compact form factor:  
25.4 mm x 25.4 mm x 3.0 mm
- upgradable Flash memory
- state-of-the-art algorithms for optimised urban environment tracking
- improved jamming immunity
- horizontal position accuracy of better than 3 m CEP without differential aiding
- integrated gyro interface for DR option
- integral LNA (supports both active and passive antennas)
- standard, XTrac and DR options
- 1PPS output with better than 1  $\mu$ s timing accuracy
- low power consumption: 75 mA
- power management options to reduce current consumption
- GPS fix output
- 7 GPIOs controlled by serial command
- WAAS/EGNOS compatible
- environment friendly lead-free product

### Related documents

- Data sheet LA010507
- Application note LA010508
- Development kit Guide LA000510

## 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)
- velocity, up to 500 m/s
- acceleration, up to 5 G

### Tracking capability

- 12 satellites simultaneously

### Accuracy

- horizontal accuracy: better than 3 m (CEP), 5 m (2 dRMS)
- time accuracy: typically better than 1  $\mu$ s

### Acquisition/re-acquisition performance

- hot start: 8 seconds (with valid almanac, time, position and ephemeris)
- warm start: 38 seconds (with valid almanac, time and position)
- cold start: 45 seconds (with valid almanac)

### Antenna input

- integral LNA for use with passive antenna
- active antenna powered through receiver (100 mA max at 12 VDC max)

### Datums

- 189 std datums, 5 user defined, default: WGS-84

### Environmental

- operating temperature:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- humidity: up to 95% non-condensing
- altitude:  $-305$  m to 12 190 m

### On-board filtering

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

### Serial interfaces

- two serial ports available (1 for DGPS input)
- CMOS-level (3.3 VDC)
- programmable baud rates
- selected NMEA-0183/SiRF binary messages: latitude, longitude, elevation, velocity, heading, time, satellite tracking status, command/control messages
- SiRF binary interface: raw data

### Electrical

#### Primary power

- 2.9 to 3.6 VDC

#### Backup power (SRAM and RTC)

- 2.5 to 3.4 VDC

#### Power consumption

- 248 mW, 75 mA at 3.3 VDC (track mode)

#### Backup power consumption

- 10  $\mu$ A (typical) at 3.3 VDC

### Physical

- dimensions: 25.4 x 25.4 x 3.0 mm
- weight: 3 g

### Connectors

- data/power/RF through surface mount pads

### Ordering information

- TU20-D410-001 Navman Jupiter 20
- TU20-D410-101 Navman Jupiter 20 S
- TU20-D420-201 Navman Jupiter 20 D
- TU20-D110-001 Navman Jupiter 20 std adapter
- TU10-D007-400 Navman Jupiter 20 std Dev Kit

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](http://www.navman.com/oem)  
Email: [oem@navman.com](mailto:oem@navman.com)

Your Navman OEM distributor: