

Jupiter³

ULTRA SMALL RECEIVER MODULE

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The Jupiter³ is Navman's smallest form-factor module and is the basis of Navman's next generation GPS receiver solutions. The J³s, based on SiRF's GSC3f/LPx chipset, offers low power and high sensitivity at a competitive price.

The J³s is designed with low cost in mind, complementing products that have existing voltage regulation, real time clock and supervisory circuit functions. The J³s integrates select key components including TCXO, LNA and SAW filter. Minimizing RF layout design issues offers faster time to market. Offering customers the flexibility in external BoM component selection.

Offering the same software messaging as the current Jupiter xLP products, J³s enables a risk free upgrade path for any customer currently using Jupiter-based products.

cont'd.

FEATURES

- 20-channel GPS receiver with 200,000 effective correlators
- Ultra low power, 19mA
- High sensitivity, -159dBm
- Assisted GPS supported (SiRF InstantFix and Ephemeris Push)
- SBAS supported (WAAS, EGNOS and MSAS) support
- Power saving modes supported



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SPECIFICATIONS

Receiver architecture

- 20-channel, 200 000 effective correlators, 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 4 G

Tracking capability

- 20 satellites simultaneously

Accuracy

- horizontal accuracy: 2.5 m (CEP), 5.5 m 2dRMS
- velocity accuracy: speed < 0.01 m/s; heading < 0.01°

Acquisition performance

Mode	@ -125 dBm	
	Typical	90%
hot start TTFF	500 ms	< 1 s
warm start TTFF	31 s	36 s
cold start TTFF	33 sa	38 s

Antenna input

- integral LNA for use with passive antenna
- active antenna powered through receiver (50 mA max at 12 VDC max)

Datums

- supports selection of datum, default: WGS-84

Environmental

- operating temperature: -40°C to +85°C
- humidity: up to 95% non-condensing
- altitude: -305 m to 18000 m

Compliance

- Automotive Standard TS16949
- EMC: FCC – Part 15, class B
- EN: 55022, class B
- RoHS

Physical

- dimensions: 11 x 11 x 2.3 mm
- weight: < 1 g

On-board filtering

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

Data interfaces

- two serial ports available
- 5 GPIOs
- CMOS-level (3.3 VDC)
- selectable 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

- input power range: 2.75 to 3.0VDC
- battery backup current: 5 to 6µA (typ) for 1.1 to 1.3 VDC (SRAM and RTC)

Mode	Power consumption
	@ 2.75 V
average sustained power (after 1st solution)	< 27 mA*

*ATP ON time = 200ms, Navigation solution update rate = 1Hz, NMEA protocol = RMC only at 57600 baud.

Connectors

- data/power/RF through surface mount pads

Related documents

- J3 Data sheet
- J3 Designers notes
- J3 Development Kit Userguide

Ordering information

- J3,0000,00,3.5.0.xx Jupiter³
- J3,00DK,00,3.5.0.xx Jupiter³ Development Kit

Note: xx represents latest firmware, subject to change without prior notice.

MODULE ARCHITECTURE

