



Jupiter⁴

ULTRA SMALL RECEIVER MODULE

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Building upon the SiRFstarIV™ architecture's high-performance and micro-power capabilities, the Jupiter⁴ incorporates innovations such as SiRFaware™, SiRFInstantFix™ and Active Jammer Removal. The Jupiter⁴ can navigate to -160dBm and track to -163dBm, providing higher coverage, accuracy and availability. This next generation Jupiter Module consumes only 8mW in 1-Hz TricklePower™ mode and can maintain hot-start conditions continuously in SiRFaware mode while drawing as little as 50-500µA.

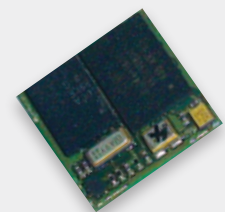
Available in both ROM and Flash versions, the Jupiter⁴ offers A-GPS support and can operate from 1.8V or 3.3V power supply.

The Jupiter⁴ supports a full range of satellite-based augmentation systems, including WAAS, EGNOS, MSAS and GAGAN. The GPS module combines the SiRFstarIV™ GSD4e™ GPS engine, TCXO, LDO, SAW filter, RTC and Flash (not required on ROM-based designs).

cont'd.

FEATURES

- 48-Channel GPS Receiver
- Ultra low power, 8mW
- Tracking Sensitivity of -163dBm
- Backwards compatible (J4-30)
- Active 8 Jammer Remover
- UART, SPI, I2C Interfaces and 5 GPIOs
- Assisted GPS supported
- SBAS supported (WAAS, EGNOS, MSAS and GAGAN)



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SPECIFICATIONS

Receiver architecture

- 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

- 48 track verification channels

Active Jammer Remover

- Removes in-band jammers up to 80 dB-Hz
- Tracks up to 8 CW jammers

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	35 s
Cold start TTFF	33 s	35 s

Sensitivity

- Acquisition: -148 dBm
- Navigation: -160 dBm
- Tracking: -163 dBm

Datums

- supports selection of datum, default: WGS-84

Environmental

- operating temperature: -40 to +85C
- humidity: up to 95% non-condensing
- altitude: -305 m to 18 000 m

Quality standards

- Automotive Standard: TS16949 (optional)
- 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

Interfaces

- UART, SPI, and I2C
- 5 GPIOs
- CMOS-level (1.8 VDC)
- selectable baud rates
- selected NMEA-0183 v3.0/SiRF binary messages: latitude, longitude, elevation, velocity, heading, time, satellite tracking status, command/control messages

Connectors

- data/power/RF through surface mount pads

Electrical

- input power range: 1.8 VDC (optional: 1.95 to 5.0VDC)

Mode	Power consumption
Average sustained power (after 1st solution)	58 mW
TricklePower*	8 mW
Hibernate	<20µA

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

Related documents

- J4 Data sheet
- J4 Integrator's manual
- J4 Development Kit user guide

Ordering information

- J4,0000,00,3.5.0.xx Jupiter4
- J4,00DK,00,3.5.0.xx Jupiter4 Development Kit

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

MODULE ARCHITECTURE

