



LASSEN iQ GPS MODULE

KEY FEATURES

- Ultra-low power: 86 mW
- Trimble quality at low cost
- Aided GPS through TSIP for faster acquisition
- Dual sensitivity modes with automatic switching
- 12-channel simultaneous operation
- Supports NMEA 0183, TSIP, TAIP and DGPS
- RoHS-Compliant (Pb-free)

LOW-POWER, HIGH-QUALITY GPS SOLUTION FOR YOUR MOBILE PRODUCTS

The Trimble® Lassen® iQ module is one smart buy. It adds powerful, 12-channel GPS functionality to your mobile product in a postage-stamp-sized footprint with ultra-low power consumption and extreme reliability—all at a very economical price.

Designed for portable handheld, battery-powered applications such as cell phones, pagers, PDAs, digital cameras, and many others, the module is also ideal for standard GPS applications such as tracking.

The 12-channel Lassen iQ module is fully compatible with Trimble's popular Lassen SQ module. Using Trimble's breakthrough, patented FirstGPS® architecture, the module delivers complete position, velocity, and time (PVT) solutions for use in the host application.

Powerful Performance

The Lassen iQ module features two GPS signal sensitivity modes: Standard and Enhanced. With Enhanced mode enabled, the module automatically switches to higher sensitivity when satellite signals are weak.

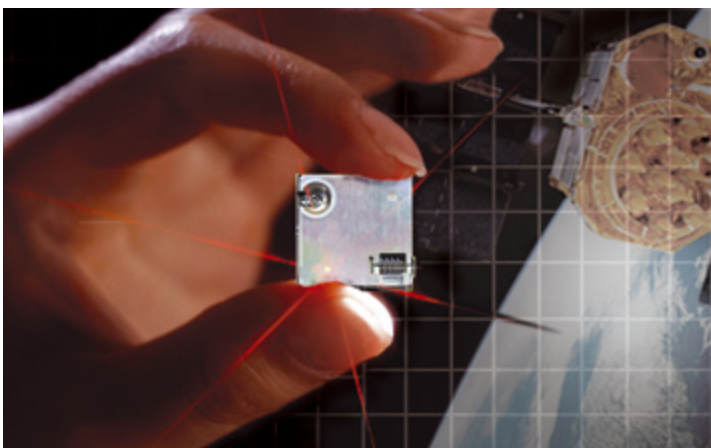
The module also supports TSIP download of critical startup information for fast acquisition. This aided GPS (A-GPS) startup provides hot start performance for each power-up.

The Lassen iQ module is the only stamp-sized GPS product that supports the four most popular protocols: DGPS (RTCM), TSIP (Trimble Standard Interface Protocol), TAIP (Trimble ASCII Interface Protocol) and NMEA 0183 and DGPS (RTCM SC-104).

The Lassen iQ module combines Trimble performance and quality with low cost. With an MTBF (mean time between failures) figure of 60 years, it is one of the most reliable GPS receivers on the market.

Hardware

A metal shield encloses the module for protection and ease of handling. The package has a small form factor, (approximately 26 mm x 26 mm, including the shield). It typically requires less than 90 mW of power at 3.3 V DC.



Lassen iQ GPS receiver with metal shield

LASSEN iQ GPS MODULE

KEY FEATURES

- 12-channel simultaneous operation
- Ultra-low power consumption: less than 90 mW (27 mA) @ 3.3 V
- Dual sensitivity modes with automatic switching
- Aided GPS through TSIP
- Antenna open and short circuit detection and protection
- Compact size: 26 mm W x 26 mm L x 6 mm H
- Supports NMEA 0183, TSIP, TAIP, RTCM SC-104 protocols
- Trimble quality at low cost

PERFORMANCE SPECIFICATIONS

General L1 (1575.42 MHz) frequency, C/A code, 12-channel, continuous tracking receiver

Update Rate TSIP @ 1 Hz; NMEA @ 1 Hz; TAIP @ 1 Hz

Accuracy Horizontal: <5 meters (50%), <8 meters (90%)
Altitude: <10 meters (50%), <16 meters (90%)
Velocity: 0.06 m/sec
PPS (static): ±50 nanoseconds

Acquisition (Autonomous Operation in Standard Sensitivity Mode)
Reacquisition: <2 sec. (90%)
Hot Start: <10 sec (50%), <13 sec (90%)
Warm Start: <38 sec (50%), <42 sec (90%)
Cold Start: <50 sec (50%), <86 sec (90%)

Cold start requires no initialization. Warm start implies last position, time and almanac are saved by backup power. Hot start implies ephemeris also saved.

Operational (COCOM) Limits

Velocity 515 m/s

INTERFACE CHARACTERISTICS

Connectors, I/O 8-pin (2x4) 1.27 mm male header, micro terminal strip ASP 69533-01

Connectors, RF Low-profile coaxial connector H.FL-R-SMT (10), 50 Ohm

Serial Port 2 serial ports (transmit/receive)

PPS 3.3 V CMOS-compatible TTL-level pulse, once per second

Protocols TSIP, TAIP, NMEA 0183 v3.0, RTCM SC-104

NMEA Messages GGA, VTG, GLL, ZDA, GSA, GSV and RMC
Messages selectable by TSIP command
Selection stored in flash memory

ELECTRICAL CHARACTERISTICS

Prime Power +3.0 V DC to 3.6 V DC (3.3 V typ.)

Power Consumption Less than 90 mW (27 mA) @ 3.3 V

Backup Power +2.5 V DC to +3.6 V DC (3.0 V typ.)

Ripple Noise Max 60 mV, peak to peak from 1 Hz to 1 MHz

Antenna Fault Protection Open and short circuit detection and protection

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature -40 °C to +85 °C

Storage Temperature -55 °C to +105 °C

Vibration 0.008 g²/Hz 5 Hz to 20 Hz
0.05 g²/Hz 20 Hz to 100 Hz
-3 dB/octave 100 Hz to 900 Hz

Operating Humidity 5% to 95% R.H. non-condensing, at +60 °C

PHYSICAL CHARACTERISTICS

Enclosure Metal enclosure with solder mounting tabs

Dimensions 26 mm W x 26 mm L x 6 mm H
(1.02" W x 1.02" L x 0.24" H)

Weight 6.5 grams (0.2 ounce) including shield

ORDERING INFORMATION & ACCESSORIES

Module Lassen iQ module, in metal enclosure with solder mounting tabs

Starter Kit Includes Lassen iQ module mounted on interface motherboard in a durable metal enclosure, AC/DC power converter, compact magnetic-mount GPS antenna, ultra-compact embedded antenna, USB interface cable, cigarette lighter adapter, TSIP, NMEA, and TAIP protocols, software toolkit and manual on CD-ROM

Antenna Transition Cable, MCX RF cable for connecting antennas with MCX connector to on-module H.FL-RF connector.
Cable length: 10 cm

Antenna Transition Cable, SMA RF cable for connecting antennas with MCX connector to on-module H.FL-RF connector.
Cable length: 10 cm

Ultra-Compact Embedded Antenna 3.3V active miniature unpackaged antenna
Cable length: 8 cm
Dim: 22 mm W x 21 mm L x 7.5 mm H
(0.866" x 0.827" x 0.295")
Connector: HFL

Compact Magnetic-Mount Antenna, MCX or SMA 3 V active micropatch antenna with magnetic mount
Cable length: 5 m
Dim: 30.4 mm W x 35.5 mm L x 11.7 mm H
(1.197" x 1.398" x 0.461")
Connectors: MCX or SMA

Dimensions 5"L x 4"W x 2"H (127 mm x 102 mm x 51 mm)

Mounting Six mounting holes for #6-32 screws. Max. depth 3/8"

Weight 0.628 lbs (0.285 kg)

Parts of this product are patent protected.

Trimble has relied on representations made by its suppliers in certifying this product as RoHS compliant.

Specifications subject to change without notice.

Trimble Navigation Limited is not responsible for the operation or failure of operation of GPS satellites or the availability of GPS satellite signals.

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