Navika-300 – Miniature High Performance GPS-SBAS(GAGAN) Module

Features

- Stand-alone 32 channels GPS-SBAS(GAGAN) positioning module
- High performance Correlator for ultra low signal detection and tracking
- Extremely fast fix times
- 12.2mm x 16mm form-factor
- Single 3.3V input supply
- Edge half-PTH connection points for easy assembly
- NMEA0183 compatible message format and Custom binary message for host communication

Navika-300
(12.2mm x 16mm)

Product Description

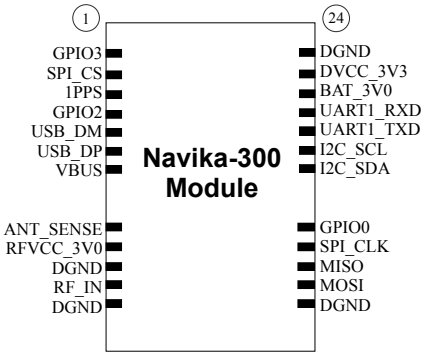
Navika-300 is a L1, C/A code based GPS-SBAS receiver module. Its superior acquisition and tracking sensitivity ensures continuous location availability under poor visibility conditions and even indoors.

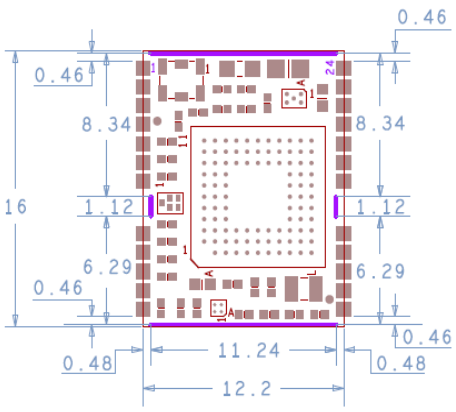
Navika-300 is a 12.2mm x 16mm module catering to applications that demand high performance from a GPS module at a form-factor that is compatible with several GPS modules in the market.

Navika-300 can be interfaced to active GPS antenna. In addition, the module provides protection/detection circuitry for accidental short/open of the active GPS antenna.

The module provides plethora of interfaces. An SPI port, TWI port, UART port and a full-speed USB port allow the module to be interfaced in a variety of ways to the outside world. The module also supports three general purpose I/O's that can be used to drive LED's or accept external interrupt signal.

Navika-300 supports NMEA-0183 message protocol to communicate the location information. In addition, Navika proprietary messages convey additional information for a tighter integration with the end application.





Navika-300 Mechanical and Pinout Diagram

Specifications of Navika-300 Module

Performance Characteristics

Receiver	:32 channels L1-C/A code GPS-SBAS

Sensitivity

Acquisition	: -155dBm (Hot start, 1SV @ -140dBm) -160dBm (Reacquisition)
Tracking	: -163dBm

Time to First Fix

Hot Start (with valid ephemeris, almanac, position and time estimate)	:2-3 sec (typical) switch OFF/ON cycle less than 1 hour
Warm Start(with almanac, position and time estimate)	:30 sec (typical)
Cold Start (without almanac, time, or position)	:35 sec (typical)

Note: Active antenna kept under open sky with HDOP<2 and C/N0 > 40dB-Hz

Accuracy

Position (Horizontal)	:<2.5 m (RMS)
Velocity	:0.1 m/sec (90% without S/A)

Note: Active antenna kept under open sky with HDOP<2 and C/N0 > 40dB-Hz

Reacquisition

Signal	:< 1 sec
Position	:< 1 sec
Blockage Time	:3 minutes

Navigation Solution

PVT	:2D/3D position, velocity, and Time (default) (WGS84)
Position Update Rate	:1 Hz

PC/Host Communication

Interface	:UART
Baud Rate	:115200 (by default)
Message Formats	:NMEA0183 Ver. 3.01 ASCII as well as proprietary messages

Environmental Characteristics

Operational Temperature Range (Ambient)	:-40°C to +85°C
Storage Temperature Range	:-40°C to +85°C
Humidity	:95% non-condensing +30°C to 60°C
Altitude	:18,000 meters

Electrical Characteristics

Total Current Consumption	:85mA @ 3.3V
GPS MIPS on ARM	:25

Output Messages

NMEA	:$GPGGA, $GPGSA, $GPRMC, $GPGLL, $GPGSV, $GPVTG, $GPZDA
ASCII	:Version, Receiver Configuration, Antenna Status, PPS mode

Input Messages

ASCII	:NMEA message control and Configuration, Elevation Mask, DOP settings, Factory reset, Restart, 1PPS configuration

Timing

1PPS	: < +/- 10ns, RMS without errors
Pulse Width	: 386us (adjustable between 386us to 500ms in steps of 386us)
Pulse Edge	: Rising (configurable)
Pulse Delay	: 0ns (adjustable between –999 to +999ns)

NAVIKA

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