

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

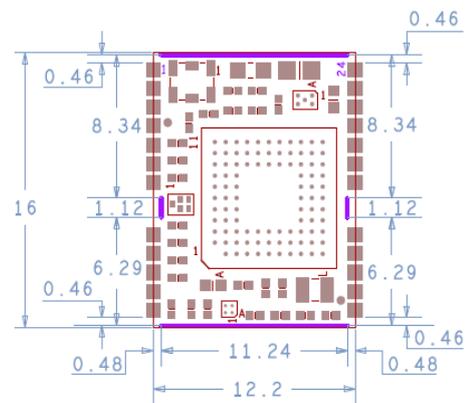
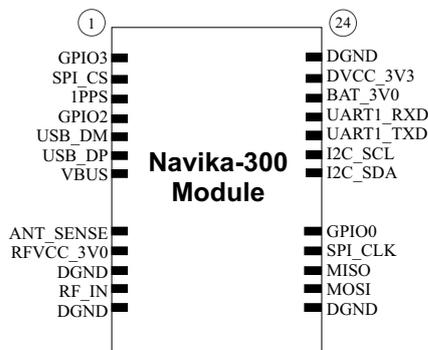
Navika-300 is a L1, C/A code based GPS-SBAS receiver module. Its superior acquisition and tracking sensitivity ensures continuous location availability under poor visibility conditions and even indoors.

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)