



Navika-100 – Miniature High Performance GPS-SBAS(GAGAN) Module

Features

- Stand-alone 32 channels GPS-SBAS(GAGAN) positioning module
- Fast Acquisition and Tracking channels
- High performance Correlator for ultra low signal detection and tracking
- Extremely fast fix times
- 1" x 1" 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-100
(1" x 1")

Product Description

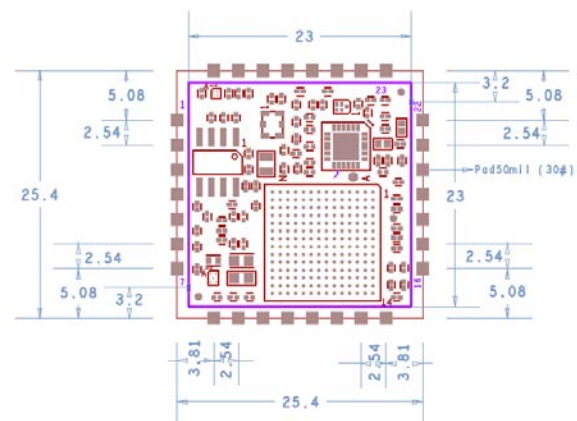
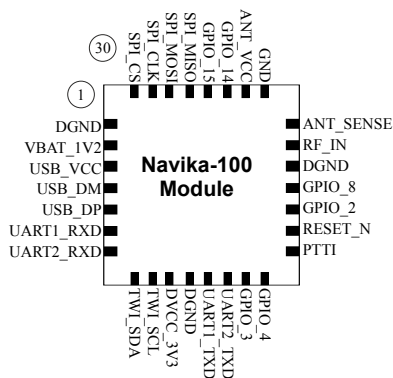
Navika-100 is a L1, C/A code based GPS-SBAS receiver module. Its superior acquisition and tracking sensitivity ensures continuous location availability under poor visibility conditions and even indoors.

Navika-100 is a 1"x1" module catering to applications that demand high performance from a GPS-SBAS module at an extremely small form-factor.

Navika-100 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, two UART ports 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 six general purpose I/O's that can be used to drive LED's or digital input-output ports.

Navika-100 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-100 Pin-out and Mechanical Details

Specifications of Navika-100 Module

Performance Characteristics

Receiver :32 channels L1-C/A code GPS

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) : <2.5m (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 : NMEA-0183 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

message

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)