ACCORD
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GPS-NAVIC-SBAS RECEIVER

ACC-GPS-NavIC-NANO+

GPS-NavIC-SBAS Receiver for Space Application

< 10m 3D POSITION ACCURACY	**< 20 cm/s** 3D VELOCITY ACCURACY	**10 km/s** 3D VELOCITY LIMIT	**< 100ns** 1PPS ACCURACY
GPS-NavIC-SBAS CONSTELLATIONS SUPPORTED	**20k rad** RADIATION TOLERANCE	**< 2 W** POWER CONSUMPTION	**1,000 kms** ALTITUDE LIMIT

PRODUCT OVERVIEW

ACC-GPS-NavIC-NANO+ is a high performance GPS-NavIC-SBAS receiver designed specifically for satellite applications.



KEY PERFORMANCE FEATURES

- ACC-GPS-NavIC-NANO+ receiver is designed for Nano-satellites
  - High performance NavIC-GPS receiver
  - Supports 30 Acquisition and 30 Tracking channels
  - Supports 10 Km/s velocity profile
  - Works out of a single 15V input supply
- RS422 UART interface
- 25 pin D-sub Male Connector for power and signal interface
- SMA female connector for antenna interface
- Active Antenna port for Interface with GNSS Antenna
- Works with power supply from 5V to 15V

PHYSICAL & ELECTRICAL

Dimensions	81mm X 73mm X 21mm
Weight	165 gms (Approx.)
Supply Voltage	5V to 15V DC
Board-to-Board Interface	25 pin D-sub male connector
RF connector	SMA female connector

UTILITY

- Accurate Determination of Orbital Position and Time
- Position or/and Time Stamping of Payload Data

Specifications of ACC-GPS-NavIC-NANO+

System Specifications

Channels	GPS SBAS : 16 Acquisition 16 Tracking	NavIC : 14 Acquisition 14 Tracking
Cold Start TTFF @ -130dBm (Combined)	< 120 sec	
Reacquisition	10 s	
Position Accuracy Open sky, C/N0 of 40 dB-Hz or higher,HDOP < 2, VDOP < 3)	< 10 m (1σ)	
Velocity Accuracy (Combined)	< 0.2 m/sec (1σ)	
Update rate	1 Hz	
Dynamics	Velocity: 10000 m/s	Acceleration: 2 g
Acquisition Sensitivity Cold Start (with active antenna with noise temperature of 100K)	GPS : -136 dBm	NavIC : -136 dBm
Tracking Sensitivity (with active antenna with noisefemperature of 100K)	GPS : -145 dBm	NavIC : -145 dBm
Reference Oscillator stability	0.5 ppm	

Input Messages

Proprietary ASCII	Reset, Message configuration, Version query

Output Messages

NMEA Ver 4.10 (OFF by default)	GGA, RMC, GSV, VTG, GSA, ZDA, GLL
Proprietary binary (ON by default)	As defined in the ICD (measurement counter, navigation state, antenna status, number of satellites used for fix, GPS time, position, velocity, GDOP, PDOP)

Environmental

Operating Temperature	-10°C to +50°C
Storage temperature	-40°C to +85°C
Vibration	$14g_{RMS}$ (random)
Altitude	1000 km
Radiation (TID)	20 krad

Mechanical

Dimensions (without consideration of connector lengths)	81mm X 73mm X 21mm
Weight	165 gms (Approx.)
Board-to-Board Interface	25 pin D-sub male connector
RF connector	SMA female connector

Electrical

Operating Voltage	5V - 15V DC
Current	<90 mA (excluding antenna current)

Host Communication over UART

Configuration	TX, RX
Baud Rate	115200 bps
Message Formats	8 data bits, 1 start bit, 1 stop bit,

Antenna (Desirable Specifications)

Receiving Frequency Range	GPS : 1557 MHz - 1606 MHZ NavIC : 1164 MHz - 1189 MHZ
Gain	27dB
VSWR at Center Frequency	< 1.5
Polarization	RHCP
Noise Figure	2.5 dB
DC Voltage	2.5 V - 16 V
DC Current	24 mA

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