GeoS-5 RTK GNSS module

High precision

22.1x15.9x2.8mm

Key Features

- Integrated Real Time Kinematics (RTK) Engine
- Configurable operating modes: Base or Rover
- Compact, energy- and cost-efficient RTK module
- 1PPS output for precise timing applications
- Binary and NMEA data outputs
- RTCM v3.3 data input
- RTK positioning update rate up to 5 Hz
- Backward compatible with GeoS-3 GNSS module

Product description

The GeoS-5 RTK is based on high performance G5 GNSS engine with integrated GeoStar's Real Time Kinematic (RTK) technology. GeoS-5 RTK provides GNSS position with sub-decimeter accuracy using phase measurements of GPS and GLONASS signals.

Integrated GeoStar's RTK technology introduces the concept of differential positioning of moving GNSS module with few cm-level accuracy - "Rover" (GeoS-5 RTK) relative to the fixed GNSS module - "Base" (GeoS-5 RTK or data from high-precision network).

The Base sends RTCM corrections to the Rover via a communication link (Wi-Fi, Cellular, UHF Radio) enabling the Rover to output its position relative to the Base down to centimeter-level precision.

GeoS-5 RTK is ideal for those high precision applications where customer doesn't need to use excess functions of geodetic-class equipment for which he has to pay, such as: Precision Agriculture, UAV, Unmanned vehicles, Machine control, Monitoring systems of geodynamic processes.

Communication with the module is accomplished through a dual serial interface (DUART) that supports GSN binary, NMEA 0183 v4.10 and RTCM v3.3 data protocols. Modules are offered in 22.1x15.9 mm 30-pad LCC package.

Performance data

Type	44-channel G5 engine GLONASS L1 C/A, GPS L1 C/A, SBAS L1 GALILEO E1B/C[4]	
Update rate	RTK Raw data	1/2/5 Hz up to 10 Hz
Position accuracy	Standalone SBAS RTK	2.5 m CEP 2.0 m CEP 0.02 m+1 ppm RMS
TTFF[1]	Cold start Cold start[2] Warm start Hot start RTK[3]	27 s 36 s 25 s 2 s <60 s
Sensitivity	Cold start Hot start Tracking	-147 dBm -155 dBm -163 dBm
Operating mode	Base or Rover (set by user)	

Electrical data

Main supply	3.3 V
Backup supply	1.6 – 3.7 V
Power consumption	<180mW

Interfaces

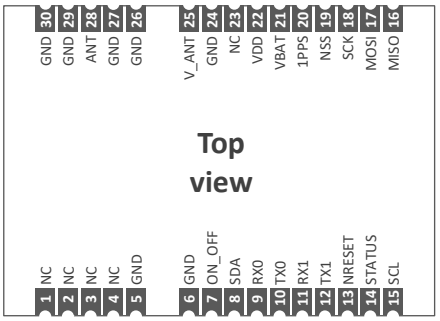
Serial interfaces	2 UARTs
Protocols	NMEA v4.10, GSN binary, RTCM v3.3
1PPS output	Programmable duration and polarity
EVENT output	RTK Status Flag

Dynamics

Velocity	up to 515 m/s
Altitude	up to 18 000 m
Acceleration	up to 4 g

Package

30-pad LLC: 22.1x15.9x2.8 mm



Environmental data

Operating temp.	-40° C to +85° C
Storage temp.	-40° C to +85° C

RoHS compliant (lead-free)

Evaluation tools

GeoS-5 RTK Evaluation Kit & GeoSDemo Software. The evaluation tools help the user evaluate GNSS solutions and reduce user's engineering efforts.

Notes

(1) All signals -130dBw
(2) All signals -140dBw
(3) Initialization time
(4) GALILEO support in future firmware release