GeoS-5ME GNSS module

Standard precision

14.3x13.7x2.6mm

Key Features

- Concurrent processing of 4 GNSS (GLONASS, GPS, GALILEO, QZSS)
- Support SBAS (WAAS, EGNOS, MSAS, GAGAN, SDCM)
- Standalone and code-differential (RTCM SC104 v2.3) modes
- Built-in Dead Reckoning Technology
- Complies with requirements GOST 33471-2015
- 1PPS output for precise timing applications
- Positioning update rate up to 10 Hz
- Backward compatible with GeoS-5M GNSS module

Product description

The GeoS-5ME is based on the high performance G5 GNSS engine with integrated GeoStar's Dead Reckoning Technology.

The GeoS-5ME module is capable of tracking and processing of four GNSS (GLONASS, GPS, GALILEO, QZSS) and SBAS (WAAS, EGNOS, MSAS, GAGAN, SDCM) signals concurrently using data from inertial sensors integrated into the IMU (Inertial Measurement Unit), as well as speed sensors to calculate position data in the absence of GNSS signals.

The standard choice for IMUs are MEMS (Micro Electro Mechanical System) sensors, which include a combination of 3-axis gyroscopes and 3-axis accelerometers. As a rule, wheel speed counters are used as speed sensors.

The field of application is the ERA-GLONASS emergency call device. The module complies with GOST 33471-2015 «Test methods for the navigation module of the in-vehicle emergency call device/system»

The Communication with the module is accomplished through a dual serial interface (DUART) that supports NMEA 0183 v4.10 and GSN binary data protocols. 1PPS output enables the use of the module in precise timing applications. Modules are offered in 14.3x13.7 mm 24-pad LCC package.

Performance data

Type	44-channel G5 engine GLONASS L1 C/A, GPS L1 C/A, GALILEO E1, QZSS L1, SBAS L1	
Update rate	1, 2, 5, 10 Hz	
Position accuracy	Standalone	1.5 m CEP
Dead Reckoning(1)	< 2.0 m/min	
TTFF(2)	Cold start	27 s
	Cold start(3)	36 s
	Warm start	25 s
	Hot start	2 s
Sensitivity	Cold start	-147 dBm
	Hot start	-155 dBm
	Tracking	-163 dBm

Module complies with GOST 33471-2015

Electrical data

Main supply	1.8 V	
IO supply	1.7 – 3.6 V	
Backup supply	1.6 – 3.7 V	
Power consumption	Acquisition	<150mW@1.8V
	Tracking	<70mW@1.8V

Interfaces

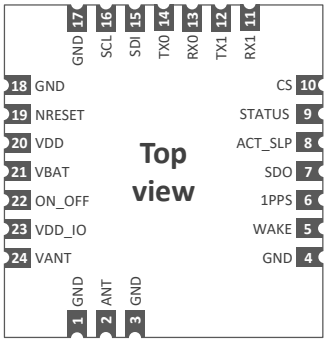
Serial interfaces	2 UARTs
Protocols	NMEA v4.10, GSN binary, RTCM v2.3
1PPS output	Programmable duration and polarity
EVENT output	Status Flag

Dynamics

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

Package

24-pad LLC: 14.3x13.7x2.6 mm



Environmental data

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

RoHS compliant (lead-free)

Evaluation tools

GeoS-5ME Evaluation Kit & GeoSDemo Software.

The evaluation tools help the user evaluate GNSS solutions and reduce user's engineering efforts.

Notes

(1) Time of absence of GNSS signals no more than 15 minutes
(2) All signals -130dBm
(3) All signals -140dBm