GPS/INS Tightly Integrated System RION-GI510

RION-GI510 Tightly integrated system applies tight integration technology to combine high sensitivity, professional level, multi-channel single frequency carrier phase and pseudo range data of GPS receiver with high accuracy quartz accelerometer and FOG based Inertial Measurement Unit (IMU). The system achieves small size, light weight and good performance-price ratio.

RION-GI510 navigation system provides attitude information of horizontal attitude and heading, provides positioning information of longitude, latitude and height, also provides 3D acceleration and angular rate, etc. It can be extended to GLONASS and further improve its measurement accuracy and applicability by assisting with speedometer and altimeter sensors etc. The extended system can be widely applied in ground, marine as well as aviation areas to provide powerful synergistic Guidance, Navigation & Control (GN&C).

Application

- Aviation
- Long-haul Transportation
- Vehicle Guidance and Control
- Attitude Reference
- Marine Dynamics
- Mining and Auto-farming
- Train & Container Tracking

Features

- Tightly integrated INS/GPS
- Low-cost, light-weight
- Complete sealed rugged design to protection against harsh environment
- Vibration and EMI resistance
- Differential GPS capability (optional)
- GLONASS capability (optional)
- Extension with speedometer, and altimeter sensors (optional)

Specification:

System Accuracy	**Heading Accuracy**		≤0.1° (1 δ)
	Horizontal Attitude Accuracy		≤0.06° (1 δ)
	Position Accuracy		Horizontal≤2m(1 σ) Height≤4m(1 σ)
	Velocity Accuracy		≤0.02m/s
	Data updating rate		100Hz
	No GPS signal (Inertial Navigation)	**Heading precision**	60s change less than 0.005° 1.5hr change less than 0.1°
		Horizontal attitude precision	60s change less than 0.005° 1.5hr change less than 0.03°
Device Main Feature	**Gyro**	**Range**	±300° /s
		Bias stability	≤0.1° /h
		Bias repeatability	≤0.1° /h
	Accelerometer	**Range**	±10g
		Bias	≤0.3mg
		Bias stability	≤0.06mg
		Bias repeatability	≤0.06mg
	GPS		16 collateral channel，L1 1575.42MHZ Acceleration: 4g, vibration: 6g, time transmission precision: 50ns
Filter mode	**Air mode**		Air speed compensation
	Water mode		Doppler compensation
	Vehicle mode		Mile meter +GPS compensation
Interface	**Interface mode**		RS-232 / RS-422 (output)
	Baud rate		115200 bps
	Mile meter		Yes (optional)
	Air speed		Yes (optional)
Physical	**Supply voltage**		Nominal 24VDC（9～36VDC）
	Working temperature		-40℃～+60℃
	Size		151×120×101mm
	Weight		＜3Kg