Features

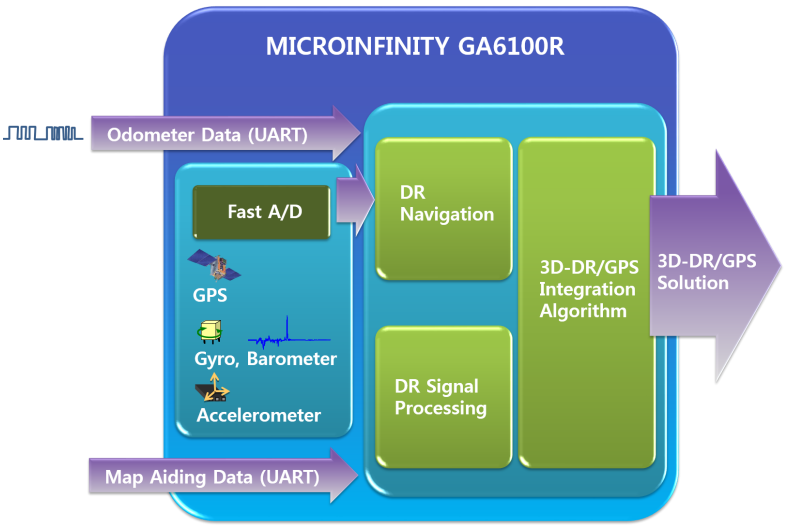
- Reliable/continuous navigation system
- Receiver with 32 Tracking channel and 2 fast acquisition channels compatible with GPS and GLONASS systems
- Automatic DR calibration
- MEMS gyro scope, accelerometer and barometer contained
- Mounting angle compensation
- 3D-DR/GPS with federated kalman filter
- Map aiding function prepared
- WAAS/EGNOS supported
- Low power consumption
- Compact packaging
- Up to 10Hz position and heading output

Applications

- **Dead reckoning car navigation for all conditions**

Description

The GA61000R is 3D-DR/GPS signal processing module that gives continuously precise 3D navigation information in hard GPS environments. The product guarantees continuous position reporting even all GPS signals are obscured. In many city-driving situations, tall buildings and narrow streets obscure most or all GPS signals. These urban canyons can also degrade the available GPS signals by reflections or multi-path. The GA6100R enhances the position accuracy and availability with dead reckoning technology. Measurements from the odometer, gyroscope, accelerometer and GPS are combined by Kalman filter resulting in a very accurate position estimate. Today, most navigation device display 3D map information, but it is merely 3D graphics based 2D navigation information. True 3D location based service can be made by GA6100R. The GA6100R is a single board and small system that can be easily integration in other systems such as MDT(Mobile Data Terminal) or CNS(Car Navigation Systems).



GA6100R 3D DR/GPS System

MICROINFINITY
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Physical Characteristics

Size (WxDxH)	24 x 24 x 3.2	Weight	5.0
Main Power Voltage	3.3 VDC	Backup Power Voltage	3.3 VDC
Main Power Consumption	400mW (Typical)	Backup Power Consumption	130uW (Typical @ Standby mode)
Data Interface	3.3 V, UART	Speed/Odometer Interface	3.3 V, UART

Environmental Characteristics

Operating Temperature	-40 ~ 85 ˚C	Storage Temperature	-40 ~ 85 ˚C
Shock	-30 ~ 85 ˚C	Humidity	5% to 95% (non-condensing)

Performances

Frequency	GPS L1 1575.42MHz GLONASS L1 1602.00 MHz	
Tracking Channels	32 channels	
Tracking Sensitivity	-161 dBm	
Sensitivity in Acquisition	Cold Start Warm Start Hot Start	-145 dBm -145 dBm -155 dBm
Acquisition Time	Cold Start Warm Start Hot Start	35 sec (open sky, typical) 34 sec (open sky, typical) 1 sec (open sky, typical)
Dynamics Maximum Rating	Maximum Altitude range Maximum Velocity range Acceleration range	18,000 m 515 m/s 4 g max
Differential GPS Support	RTCM104, SBAS(WAAS, Egnos)	
AGPS Support	ST Self-Trained Assisted GPS (ST-AGPSTM) 5 days, GPStream™ 7 days	
Heading Error/Drift	DR only DR/GPS	< 0.1 ˚/sec (typical) < 5 ˚ (open sky, typical)
Position Accuracy	GPS only DR only DR/GPS	1.5m (CEP 50%, 24hr static at –130dBm) < 5% of distance traveled up to 1 Km (typical) ≤ 1.5m CEP with SA off (typical)
Altitude Error/Drift	DR only DR/GPS	< 1 m/min (typical) < 10 m (open sky, typical)
Output Protocol	NMEA 0183 v3.01 and Microinfinity Format	

* Specifications are subject to change without notice.

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