

G4N17EES rev. 4 GPS/GSM-GPRS AVL Tracker



Product overview

G4N17EES is a mature GPS Tracking product dedicated for fleet management services. The unit has dedicated functions for geographic position acquisition and storage, recording of specific automotive data and transmission of incoming peripheral devices information to command center.

The long time exploitation in automotive environment turned the G4N17EES into mature product. Redesigned completely to integrate the latest GSM & GPS technology, the new GPS model includes the latest available electronic components available on the global market

G4N17EES brings new features like: power failure backup system able to provide 10h of fully functional autonomy and a completely integrated vehicle ignition control system suitable for antitheft applications.

The G4N17EES platform has the following advantages:

- § Efficiently and low exploitation costs
- § Implementation flexibility
- § Internationally unique communication solutions
- § Expanding capacity and permanent upgrading

Base characteristics

- § Storage of collected data at 1 min. or 10 min.
- § G4NISM – 10m dedicated ISM 2.4 GHz radio communication
- § Interconnection with 15 distinct types of peripheral devices through G4NRF interface such as: Fuel flow meter, Driver access control device, PDA interface, CAN interface for digital tachometers.
- § Exploitation reliability for extreme temperatures -30C~+85C
- § GSM Triband communication – 900/1800/1900 MHz.
- § Over 4 methods to transfer information via GSM: GPRS/SMS
- § Cost effective communication over GPRS due to the implemented algorithms dedicated for data storage and resume download
- § Dynamic upgrade of the internal software via GSM-GPRS.
- § Easy and fast installation, immediate diagnoses.
- § Remote vehicle ignition control
- § Integrated power backup system

Technical Specifications

- § The unit integrates a GSM module responsible with the transmission of the stored information. Currently the unit is able to manage the transmission over SMS and GPRS protocols. The GPRS protocol is the main communication solution able to provide permanent transmission at low costs, while SMS protocol is handling the command messages and instant position reporting to command center.

GSM Communication	
GSM-GPRS-SMS	900 / 1800 / 1900 MHz, (optional 850 Mhz)
GPRS Standard	Class 10, max. 85.6 Kbps
GPRS data transfer methods	<ul style="list-style-type: none"> § Download stored data on request § Chronologic download configurable over 8 time intervals per day. § *Permanent data transfer over local network § *Permanent data transfer over roaming <p>*Configurable at 1min or 10min. Working only for moving vehicles with engine on. *Up to 213 GSM roaming favorite networks.</p>
SMS	Standard Text - 128 characters
SMS report methods	<ul style="list-style-type: none"> § Position on request (includes system information + last valid position) § Permanent reporting at 1min or 10min (backup communication for GPRS)
Antenna	External; Triband; 5dB gain; 1,5m cable

- § The geo location processing is handled only by the GPS engine. There is no other parallel geo location solution included. The unit is by default equipped with a GPS Nemerix engine which provides good precision and fast TTF (time to first fix).

GPS	
GPS-receiver	16 channels, Nemerix engine
Navigation	Accuracy ~ 7m CEP (90%)
Sensitivity	-152 dBm Tracking, -139 dBm Acquisition
Environment	Temperature range -40C ~ +85C
Antenna	Active Antenna 3.3V, SMA connector

- § G4NISM is the wireless communication core integrated in all GPS4NET solutions. G4NISM is handling the communication with the peripheral devices, full on site service and local communication with the command center. The communication protocol allows parallel data transfer and no radio interference with other wireless technologies that share the same spectrum like Wifi or Bluetooth.

ISM Communication	
G4NISM	Standard RF ISM 2.4 GHz ~ 10 m
Protocol	Proprietary. All rights reserved for GPS4NET
Embedded Function	Ping, Broadcasting
Addressing	65450 parallel ISM addressable networks 4096 GPS units / fleet 15 classes peripheral devices / GPS unit
Advantages	<ul style="list-style-type: none"> § No physical connection with peripherals § Remote service in 10 m range
Antenna	On-Board

System Characteristics	
Average current	< 100 mA
Power feed	9 – 35Vdc
Accumulator	Li-Ion – 900mAh ~ 10h backup time
Wire connections	Inputs: Power, Ground, Contact, Analogical Input, Vehicle ignition control (internal relay)
Internal Relay	Max. 2A, status: normal Open, normal Close
Power consumption	800mW
Environment	Working Temperature: -30C ~ +85C Storage Temperature: -40C ~ +90C
EMI	Full shielded GPS & GSM, CE & FCC compliant
Case	ABS, IP 3.3, 112x62x31 mm
System cycle	1 min or 10 min – acquisition & storage
Memory	FlashRAM 16 Mbits. ~ 90112 records
Memory capacity	<ul style="list-style-type: none"> § 10 days @ system cycle set at 10 sec. § 2 months @ system cycle set at 1 min. § 20 months @ system cycle set at 10 min.
Microcontroller	DW8051 Synopsys Core

§ G4N17EES integrates an extended command set dedicated for remote dynamic control. These commands are accepted only over SMS protocol which provides high redundancy even over GSM low signal areas. Currently the GPRS protocol is not supported for remote management of the unit.

In the proximity of G4N02DON (the command unit device) each GPS unit can be fully managed and controlled.

In order to receive an instant positioning, even in low GSM signal areas, the GPS unit accepts authorized voice calls and in exchange will return the geographic position and several system status information.

Embedded Functions	
SMS commands	<ul style="list-style-type: none"> § Download on request data via GPRS § Chronological download & set via GPRS § Persistent download via GPRS in home network § Disable persistency via GPRS in home network § Persistent download via GPRS in roaming § Disable persistency via GPRS in roaming § Persistent reporting via SMS § Disable persistency via SMS § Set system cycle at 10 sec. § Set system cycle at 1 min. § Set system cycle at 10 min. § Erase memory § Reset GPS unit § Service Mode GPRS § Peripheral devices commands § Vehicle ignition control <p>For each command is necessary to send 1 SMS.</p>
G4NISM commands	<p>The system is subject to the following rules:</p> <ul style="list-style-type: none"> § Commands for Scan, Settings and service may be transmitted only by G4NDon, which is considered the command unit. The system has over 13 embedded commands. § Peripheral devices has a reduce number of instructions dedicated for reading SMS commands, transmit SMS toward G4NDon, transfer internal status into GPS memory.
Voice call	Returns: instantaneous GPS position, system status