G4N01FMS rev. 1
CAN J1939 Interface

G4N01FMS is an acquisition and data processing interface for the information provided by the vehicle components that communicates over the CAN J1939 protocol . This interface is compatible with the utility vehicle brands: DAF, Volvo, Scania, Man, Iveco.

Product overview

G4N01FMS is a product developed in collaboration with DAF Romania and E-VANWIJK. This interface is dedicated for acquisition of status information specific to DAF utility vehicles. The interface was tested on all DAF models equipped with board computer and CAN bus.

G4N01FMS is a product designed for increasing the performance and efficiency in transportation industry by reducing the fuel consumption and vehicle maintenance costs.

The interface is designed as a slave interface for the GPS master units like G4N17EES. The embedded electronics integrates a radio interface in 2.4 GHz dedicated for data transfer and synchronization between the CAN interface and GPS master unit. Thus all transferred information will be sent later over GPRS to command center for processing.

Unlike other similar products, this interface is more than a FIFO filter being capable to selectively grab the necessary information and compress it as much as possible in order to reduce the GSM-GPRS traffic.

Base characteristics

G4N01FMS used with the G4NAVL fleet management application will provide reports, charts and statistics of real interest such as:

§ Report related to the efficiency & economy of vehicle driving providing: number of brakes over 10 seconds, accelerations over the green zone, driving time in cruise control mode, high fuel rate, high rpm, brake efficiency.

§ Mission reports and charts related to traveled distance, parking time, total fuel consumed.

§ Mission reports and charts regarding the maximum, minimum and average values for: engine speed, engine temperature, vehicle speed, fuel rate.

Also this interface can provide information such as: tachometer status, utility status installed on vehicle (ex. elevator), brake system pressure, axis weight.

Technical specifications

§ In order to avoid any data interference on vehicle CAN bus, G4N01FMS will be connected in Passive mode only (only reception). Otherwise the data collision with vehicle active components could cause major malfunctions.

§ G4N01FMS supports Active mode (Transmit/Receive) on a separate CAN bus dedicated for communication with GPS4NET proprietary devices such as thermal sensors.

Communication	
CAN Standard	Ver. 2.0B , Standard & Extended Frames
CAN Speed	Up to 1Mbps
CAN Connection	Direct connection (Active) , Listen only (Passive)
G4NISM	Standard RF ISM 2.4 GHz ~ 250 mW ~ 300m
Protocol	Proprietary. Developed by GPS4NET
Embedded function	Ping, Broadcasting
Addressing	Slave to GPS – GSM unit
Features	§ Stored information is transferred to GPS unit § Easy service in 300 m range
Antenna	Internal 2.4 Ghz

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System Characteristics	
Maximum Current	< 100 mA
Power feed	8 – 40 V. Dc
Power consumed	Maxim 500mW
Environment	Working Temperature: -25C ~ +85C Storage Temperature: -40C ~ +90C
EMI	CE & FCC compliant
Case	ABS, IP 3.3, 80x67x33 mm
Microcontroller	DW8051 Synopsys Core

§   When integrated in customized solutions like sensors or flow meters, the G4N01FMS interface is acting like a communication bridge between ISM and CAN, thus providing the necessary features for remote ISM diagnosis or firmware upgrade over CAN bus.

§   G4N01FMS device has an internal operating system and internal clock. During the synchronization with the master GPS unit the CAN interface is syncing the clock with the GMT, is transferring the setup GSM-SMS commands, is uploading the stored information into the GPS memory or is performing firmware upgrade. All this features are possible due to the G4NISMP unique radio protocol.

Embedded Functions	
CAN Acquisition	8 filters are available to configure by: § CAN message type § Acquisition interval at 1 sec. time resolution § Acquisition at engine start, engine stop or periodical preset. These filters are configurable over G4NISMP or SMS.
ISM Commands	Main commands: § Identify slave device § Status slave device § Configure CAN parameters § Upgrade Firmware CAN interface § Reset CAN interface § Synchronize time GPS with CAN clock § Automatic data transfer from CAN into GPS memory
SMS Commands	§ Set CAN message filter § Set synchronization periods § Reset hardware § Upgrade Firmware over GSM-GPRS

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