MAIN FEATURES

- Extra small size – only 67x45x18 mm
- Real time tracking
- Smart algorithm of data acquisition (time, speed, angle)
- Data sending via GPRS (TCP and UDP)
- Low GPRS traffic usage
- Protection against unlimited GPRS sessions
- Very sensitive and precise GPS receiver
- GPS jammer detector
- Large internal FLASH memory – stores up to 8000 km
- Different work modes for home and roaming networks
- Vehicle's battery voltage monitor
- Direct connection to vehicle's standard fuel sensor
- Standalone Fuel Theft detector
- Fuel flow meter support
- Fuel level calculation filter
- Fuel level control while vehicle's Ignition OFF
- Configurable SMS reports to predefined phone number
- Fully configurable settings via SMS commands

DIGITAL SYSTEMS ltd
info@digitalsystems.lv
www.digitalsystems.lv

INTERFACE DESCRIPTION

- 1 digital input for Ignition status monitoring
- 1 specialized input for direct fuel sensor connection
- 1 universal Analog input 0…30V, also configurable as impulse counter
- 1 digital input for general purpose
- 1 digital Open-collector output
- 3 system's status LEDs
- External GPS antenna
- External GSM antenna

TECHNICAL PARAMETERS

GSM

- Dual band GSM   900/1800 MHz
- GPRS uplink speed   42,8 kbps
- Transmitting power:
  EGSM 900   Class 4 (2W)
  DCS 1800   Class 1 (1W)

GPS

- Number of GPS channels   50
- Tracking sensitivity   -162 dBm
- GPS accuracy   2 meters
- GPS Cold start   30 sec
- Supports   WAAS, EGNOS, MSAS

POWER SUPPLY

- Operation voltage   DC, 8……36V
- Current consumption (average at 12V)
  Idle mode   50mA
  Data sending mode   100mA
- Digital input voltage   8……36V
- Analog input voltage   0……30V
- Digital output load (max)   500mA
- Operation temperature   -30…..+85^{0}C
- Dimensions   67x45x18 mm

DIGITAL SYSTEMS ltd
info@digitalsystems.lv
www.digitalsystems.lv

LOW GPRS TRAFFIC USAGE

With help of special data compress algorithm, average GPRS traffic usage is reduced down to 2 MB per month, however it depends of vehicle usage and also depends of each GSM provider. GPRS traffic usage example (TCP protocol):

2000 km per month (only city) – 2,2 MB used

3000 km per month (city and highway) – 1.5 MB used

4000 km per month (mostly highway) – 1 MB used.

It is possible to reduce more GPRS traffic, using UDP data transmission protocol.

FUEL THEFT DETECTOR

It is possible to monitor fuel level in the vehicle's fuel tank during parking time (ignition OFF), in case if fuel level has been changed more than defined parameter, system will send extra event to the server, after that server can inform a vehicle's owner using text message or email. It is possible to set a user's phone number directly in device memory; in this case user will be warned about level change directly from device via SMS.

GPS JUMMER DETECTOR.

In case if vehicle has been used with GPS jammer or GPS antenna has been disconnected by driver, system will send special events to the monitoring server. In this case it is not possible to get valid GPS position and driving speed, however system will continue to send the status of Analog and digital inputs, correct GPS time, actual fuel level as well as fuel theft alerts (if detected).

**LARGE INTERNAL FLASH MEMORY**

In case if GSM coverage is not available or roaming data sending is not allowed, all events will be stored in the internal FLASH memory. After GSM coverage is restored, system will send all unsent events to the server, starting from oldest event. Totally it is possible to store 32768 events, in case if memory is full and new events must be stored, system will delete oldest events in the memory. Please see example of capacity of memory;

Vehicle usage	Approximate number of events per 1 km	Total distance can be stored in the memory
City	20	1600 km
City and highway (combined)	10	3200 km
Highway	4	8000 km

DIGITAL SYSTEMS ltd
info@digitalsystems.lv
www.digitalsystems.lv

FUEL LEVEL CALCULATION FILTER

As vehicle usage is subjected to different vibrations and movements, the fuel level in the fuel tank is not stable – it is changing all the time. For example, please see typical fuel curve of most popular GPS tracking devices:
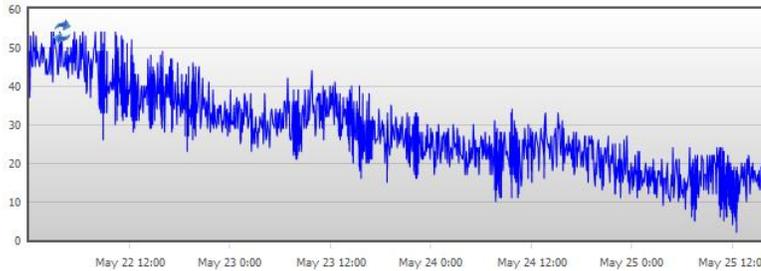
As you see, it is not possible to calculate exact fuel consumption, because fuel level difference between two measurements can be more than 20 litres.

We have implemented special fuel calculation filter, it monitors driving angle and speed, using these parameters fuel data are corrected and filtered. In case if one of the measurements are not valid, system will repeat with new measurement. Please see example of fuel curve after filtering:
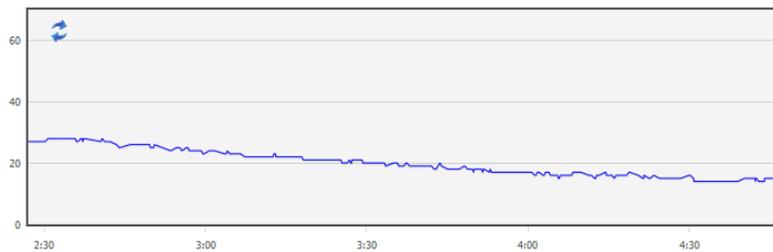
FUEL LEVEL CONTROL WITH VEHICLE'S IGNITION OFF.

With help of specially developed fuel measurement module it is possible to control fuel level even vehicle's ignition is switched OFF and there are no power supply on fuel level sensor. This feature is very usable for fuel theft detections while vehicle is left on parking.

DIGITAL SYSTEMS ltd
info@digitalsystems.lv
www.digitalsystems.lv