



Main features

- Extra small size – only 67x45x18 mm
- Real time tracking
- SMART event trigger algorithm
- Lowest GPRS traffic usage
- Supports TCP and UDP protocols
- Protection against unlimited GPRS sessions
- Very sensitive and precise GPS receiver
- Anti-sabotage – special work mode without GPS signal
- Large internal FLASH memory – stores up to 8000 km
- Different work modes for home and roaming networks
- Vehicle's battery supervisor
- Engine running detector
- 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 via SMS commands

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 or used for vehicle's battery monitoring
- 1 digital input for general purpose
- 1 digital Open-collector output
- 3 system's status LEDs
- External GPS antenna
- External GSM antenna

Technical parameters

- Quad band GSM 800/900/1800/1900 MHz
- GPRS uplink speed 42,8 kbps
- Transmitting power:
 - GSM 850 and EGSM 900 Class 4 (2W)
 - DCS 1800 and PCS 1900 Class 1 (1W)
- Number of GPS channels 50
- Tracking sensitivity -161 dBm
- GPS accuracy 2 meters
- GPS Cold starts 30 sec
- Operation voltage 8.....36V
- Current consumption (12V)
 - Ignition OFF 50mA
 - Ignition ON 100mA
- Digital input voltage 8.....36V
- Analog input voltage 0.....30V
- Digital output load (max) 500mA
- Operation temperature -30.....+85⁰C
- Dimensions 67x45x18 mm

Low GPRS traffic usage.

With help of special data compress algorithm, average GPRS traffic 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:

- 2000 km per month (city) – 2,2 MB used
- 3000 km per month (city and highway) – 1.5 MB used
- 5000 km per month (mostly highway) – 1 MB used.

Fuel Theft detector.

Each time vehicle is stopped (ignition switched off), terminal remembers current level of the fuel in the tank. In case if fuel level drops, terminal will send SMS warning message to predefined phone number. This feature helps to prevent from fuel thefts, very useful for trucks, tractors and construction machinery.

GPS jammer alarm.

In case if GPS signal has been jammed or GPS antenna disconnected, terminal will send warning SMS alert to predefined phone number.

Anti - sabotage.

In case if vehicle has been used with GPS jammer or GPS antenna has been disconnected, 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.

Vehicle battery supervisor.

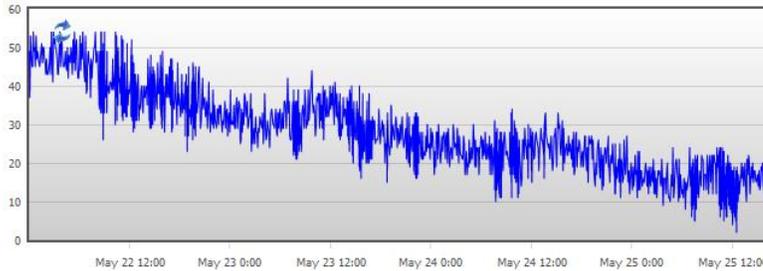
In case if vehicle's battery voltage drops below defined level during parking time, terminal will send SMS warning message to predefined phone number. This feature is very useful to help improve situations when it is not possible to start the engine because of low battery.

Large internal data memory.

In case when GSM coverage is not available or roaming data sending is not allowed, all data will be stored into data memory. After GSM coverage is restored, terminal will send all unsent data to the server. Totally it is possible to save 32768 events, depending of vehicle usage it is up to 8000 km.

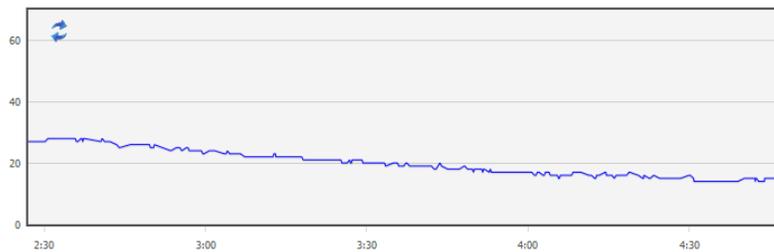
Fuel level data lineariser.

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 GPS tracking devices without data lineariser:



As shown, it is not possible to calculate exact fuel consumption, because fuel level difference between two measurements can be more than 20 litres.

DSF-20 terminal have a special fuel linearizing algorithm. Depending on driving angle and speed changing, fuel data are corrected and linearized. Please see fuel curve after linearizing:



Direct connection to vehicle’s standard fuel sensor

Today most of new vehicles have digital dashboards. As there are no more analog signal on original fuel sensor, information about fuel level is not available. It is possible to use additionally installed fuel sensors, however it double costs and not possible to install for passenger cars. DSF-20 terminal have specialized input for direct connection to vehicle’s original sensor. It uses own power to power up fuel sensor and make a measurements without interrupting a vehicle’s electronics. This feature allows to control fuel level even ignition is switched off.