**FAS (Fuel control and transport monitoring system)** is a tool for monitoring the fleet of the company, it reflects the reliable fuel consumption, route and parameters of work of vehicles in real time. To determine the location FAS System uses such satellite navigation systems as GLONASS and GPS.

FAS System allows to reduce fuel costs, to prevent downtime and mismanagement of machinery, to avoid fraud and negligence on the part of drivers.

Key features of FAS System are: detailed analysis of fuel consumption, simplicity and convenience of use, 3-year warranty. All components of the system have industrial design, as well as vibration-proof, dust-proof and moisture-proof connectors used in aviation and military equipment.

Their main area of its application is installation on vehicles owned by transport, mining, construction, agricultural, logging and other companies. It can be applied on the railway or river transport, minibuses, special machinery or special services’ machines.

The system can be applied on vehicles operated outside the zones of a cellular GSM-communication, and also on the transport that leaves the territory of the Russian Federation.

**Components of FAS System:**
• Autocheck SE program - for data analysis and reporting.
• Data logger for data collecting from vehicles.
• LLS fuel level sensor for fuel volume measuring.

Network GSM is used as the main data transfer channel from the vehicle. To work with the Autocheck SE you only need a computer connected to the Internet.

The system collects and analyzes data from the following vehicles:

• geographical coordinates;
• fuel level in the tank of a car or a tanker;
• Enabling / disabling the ignition
• direction of movement;
• speed;
• engine speed;
• on-board voltage;
• indications of additional sensors;
• altitude

**FAS System allows to accomplish the following tasks:**
• accounting of parameters of the company’s vehicles, revealing the facts of improper use, such as the engine’s increased loads and excessive speed;
• analysis of fuel consumption of vehicles, revealing the facts of increased or decreased consumption, fixation of deviation from the consumption norms;
• control of the location and routes of vehicles, detection of unauthorized runs;
• analysis of the work time of vehicles of the fleet, identification of idle and irrational use;
• analysis of the groups of vehicles, comparison of work parameters of individual vehicles in the group;
• control of additional equipment and actuators.

**Economic effect of the introduction of FAS**
FAS System - is first of all an analytical system with quite extensive options. The possibility of its application for the analysis and identification of inefficient use of vehicles distinguishes the FAS system from a wide range of navigation systems on the market.
The use of fuel level sensors LLS and unique algorithm of data processing for the detection of fueling and gas stations nullifies any possibility of concealment of theft.
Availability of information about real expenditure of fuel allows to revise the rates of consumption and reduce the amount of funds allocated for the purchase of fuel. System allows to achieve savings of up to 40% of the initial volume of fuel costs.

A great list of reports, that provide information on the work of vehicle, allows to carry out a comprehensive analysis, identify inefficient use, reduce downtime, detect facts of unfair work, to extend the term of operation of vehicle.

The ability to easily add an additional reporting system allows to adapt the system to the needs of a particular consumer.
Operation the satellite systems GLONASS and GPS and mapping areas of leading suppliers guarantees the accuracy of definition and convenience of display of the location of vehicles.

**Depending on the sphere of activity and type of transport costs on the system implementation pays off in a period of 3 to 18 months.**

Thus, the economic effect from the system implementation is achieved due to:
• reduction of mileage of vehicles;
• reduction of fuel and maintenance costs of the vehicle fleet;
• elimination of downtime of equipment;
• improvement of safety of works and transportation;
• preclusion of misuse of transport;
• improvement of the staff’s discipline.

**The FMS** is designed for registration and control of the basic parameters of vehicle use, and, first of all, fuel input, movement mode and mileage. The FMS system permits you to get the real information about the actual fuel consumption of the vehicle, to record the time and the volume of petrol stations and fuel discharges.
The FMS is established and effectively used in various spheres of activity: trucks and dump trucks, excavators and bulldozers, concrete mixers and truck cranes, generators, compressors and heaters, locomotives and ships. System can be used on vehicles with two or more fuel tanks.

**System components**
• Software Autocheck 5 to analyze data and generate reports;
• FMS registrar to collect data from vehicles

• Reader for reading the data from the FMS logger.
• LLS fuel level sensor to measure the level of fuel in the tank.

The LLD fuel volume indicator can be optionally used as a part of FМS

The main channel of data transfer from the FMS Registrar is the wired reading. The FMS Registrar is to be removed from the vehicle, connected to the card reader, which transmits the data to the program Autocheck 5.

Instead of wired reader one can use the wireless channel data readout formed by the mobile module ZigBee, connected to the FMS Registrar and the base station ZigBee connected to a computer located in the user network.

The FMS provides the collection and analysis of the following data from the vehicles:

* the level of fuel in the fuel tanks
* mileage value
* the speed
* Enabling / disabling the ignition
* the fact of operation the engine

The system allows to solve the following tasks:
• continuous monitoring of discharges and refills, identify possible fuel fraud;
• adjusting norms of fuel taken for write-off in the company;
• establishing the optimum mode of operation the vehicles, carrying out the control of various parameters: speed, mileage, time of work, fuel consumption;
• tracking non-productive downtime and the use of vehicles for private purposes;
•improving the discipline of drivers;
• produce indirect control over the technical failures and comprehensive analysis of the operation of equipment in different operation conditions and load.

**Economic effect from FMS’s application**

With the help of FMS administration has the ability to control the main parameters of use of vehicles. And, first of all, to control the fuel consumed and the covered.

The FMS allows you to get real information about the actual fuel consumption and prevents the possibility of additions to its quantity, needed to complete the course.

Continuous monitoring of fuel and mileage eliminates drivers from the temptation to commit all sorts of fraud: the use of the vehicle for personal purposes, collusion with the operator of the petrol station, fuel sales on the side, twisting the speedometer and the tachograph.

**Savings from FMS’s application, will improve the company's profitability, significantly reducing the cost of works and excluding non-existent costs.**Thus, the economic effect from introduction of the system is achieved due to:
• Fuel consumption control and elimination of fraud;

• adjustment of norms of fuel consumption;

• reduction of cost of fuel, maintenance and repair;

• increase of service life of machines;

• improvement of the performance of the vehicle fleet and elimination of the misuse of facts technology.

**Standard set of fuel delivering module NP-10 includes:**

* Fuel tank 10 m3 - 1 piece;
* Steel tank (Art. 3) rectangular, single-walled , single-section;
* Sensor of liquid presence in the inter-space;
* Technological compartment of fuel tank;
* Technological compartment of fuel dispenser complex - 1 pc.
* Technological compartment of suction pump - 1 pc.
* Topaz 611 fuel dispenser - 1 pc.
* The pump suction KM-65-50-160Е - 1 pc.
* Transmitter MFC - 201 - 1 PCs.
* Filling line - 1 pc.
* Line of fuel-dispensing - 1 pc.
* Metering hatch - 1 pc.
* Technological hatch - 1 pc.
* Deaeration line with a breathe valve - 1 pc.
* Desliming line - 1 pc
* Socket outlet - 1 pc.
* Filter drain - 1 pc.
* Globe valve – 2 pcs.
* Shut-off valve of the filling line - 1 pc. (CPC)
* Non-return valve of the dispensing line - 1 pc.
* Check valve in the filling line - 1 pc.
* Flame arrester - 2 PCs;
* Lighting for the compartment of dispensing complex pump and suction pump - 2 PCs;
* Fire alarm system - 1 set.
* Fireproof compartment dividers of fuel dispensing complex pump and suction pump - 2 PCs;
* Ventilation for the compartment of fuel dispensing complex pump and pump - 2 PCs;
* Electric panel for own needs - 1 pc.
* Valve, ball valve - 2 PCs
* Shield - 1 pc.
* Grounding TM;
* Meterstock - 1 pc.
* Railing fence - 1 set;
* Stairs - 1 pc.
* TG (tank grounding) - 1 set.