Automotive Sensor Products

Diesel Fuel Module



General Description

The Fuel Heater Module is a system that can integrate multiple functions in a single component such as Fuel Heating, Water in Fuel detection, Pressure and Temperature sensing thus achieving high efficiency in cost and space.

Features

- Self-regulated PTC heating elements
- Wide power range available
- Integrated NTC temperature sensing
- Integrated electronic thermostat
- Integrated diagnostic network

Benefits

- Can work in pressure or vacuum
- Various output signals (Analog, Serial Output)
- Over voltage and reverse polarity protected
- Can be integrated with priming pump
- Can be integrated with purge valve
- Can be integrated with a differential or absolute pressure sensor
- Can be integrated with an active or passive Water in Fuel sensor

Applications

- Fuel filtration
- Engine management
- Passenger cars
- Commercial vehicles
- Power generator

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Operation

Fuel Heater
At low temperatures paraffin drops out of Diesel fuel. This paraffin clogs the fuel filter. The Heater warms up the fuel before the filter avoiding clogging.

Water in Fuel Detection
Diesel contains a certain amount of water. The water will be separated by the filter element. The separated water will be collected in the water trap at the bottom of the filter module. The water level sensor will be used to detect a specific water level and send a signal to the ECU.

Diagnostic Function
An internal network can send a signal to the ECU to recognize the presence of proper harness connection.

Pressure Sensor
With mileage or working time the filter cartridge can start to clog, increasing the fuel consumption and then stopping the engine. Clogging of the filter cartridge can be detected by the measurement of the differential pressure across the filter.

Temperature Sensor
For optimal engine management, the ECU needs to receive the information about the fuel temperature. The integrated sensor can give this information to the ECU.

Fuel Heater Module Types

Integrated on Customer Filter or Part of Customer Filter
- It could be mounted inside the body of the customer filter.
- The module itself can be a part of the filter body (i.e. supply of the filter head with all the functions integrated).

Electronic or Bi-metal Thermostat
- The module can use a bi-metal switch as thermostat.
- The module can use an electronic thermostat.

Active or Passive Water in Fuel Sensor
- The module can be integrated with passive water in fuel sensor that consists in the two metallic probes and a diagnostic resistor to be connected to the ECU.
- The module can be integrated with an active water in fuel sensor that consists of the two metallic probes plus the electronic amplifier to dialog with the vehicle ECU or to directly drive the load (lamp, LED, relay) without the needs of an ECU.

Purge Valve
- The module can be integrated with a valve to purge the water collected and detected by the Water in Fuel function.

Temperature Sensor
- The module can supply, in analog or digital format, the temperature value of the fuel to the ECU.

Pressure Sensor
- The module can be integrated with a differential pressure sensor to detect the clogging of the filter cartridge.
- The module can be integrated with an absolute pressure sensor to dialog with the vehicle ECU for the engine management.

Diagnostic Function
- An internal network can allow the vehicle ECU to detect the proper connection of the harness from the fuel heater module.

Packaging Options
- Standard and customer specific options available.

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Electrical Characteristics

Parameter	Min.	Typ.	Max.	Unit
Power Requirements				
12 V Supply Voltage	8	-	16	V
24 V Supply Voltage	16	-	32	V
Power	Fully customizable			W
Temperature Range				
Operating Temperature	-40		130	°C

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