

## High Pressure Fuel Rail Pressure Sensor (DI Fuel Rail)

The fuel rail pressure control system uses the measured fuel rail pressure in a feedback control loop to achieve the desired fuel rail pressure. The fuel injection algorithm uses actual fuel rail pressure in its computation of fuel injector pulse width and fuel injection timing.

The Fuel Rail Pressure sensor is a gauge sensor. Its atmospheric reference hole is in the electrical connector. The fuel rail pressure sensor has a nominal range of 0 to 26 MPa (0 to 260 bar, 0 to 3770 psi). This pressure range is above the maximum intended operating pressure of 15 MPa and above the pressure relief valve setting of 19.4 MPa. The sensor voltage saturates at slightly above 0.2 and slightly below 4.8 volts.



Fuel Rail Pressure Sensor

Fuel rail pressure can develop a vacuum when the vehicle cools after running. Vacuums can be measured by the FRP gauge sensor as voltages near the 0.2 Volt limit.

FRP Open/Short Check Operation:	
DTCs	P0192 - Fuel Rail Pressure Sensor A Circuit Low P0193 - Fuel Rail Pressure Sensor A Circuit High
Monitor execution	Continuous
Monitor Sequence	none
Sensors OK	none
Monitoring Duration	5 seconds to register a malfunction

Typical FRP Sensor Check Malfunction Thresholds:
FRP voltage < 0.27 volts or FRP voltage > 4.76 volts

A fuel pressure sensor that is substantially in error results in a fuel system fault (too rich / too lean). If actual fuel rail pressure exceeds measured pressure, more fuel than that which would be expected is injected and vice versa. This fuel error would show up in the long term and short term fuel trim.