EVAP System Integrity Module (ESIM)

Premium Replacements for a Growing Category

The Evaporative System Integrity Module, also known as an Evaporative System Integrity Monitor or ESIM, is a key component of the EVAP System on many late model Chrysler, Dodge, Jeep, RAM Trucks, and Fiat vehicles. Unlike previous Leak Detection Systems, the ESIM does not contain a solenoid. Instead, the ESIM uses two weights, a diaphragm, and a switch to detect pressure differences across a variety of conditions.

LDP14
Chrysler (2017-07)
Dodge (2016-06)
Jeep (2016-07)
RAM (2016-11)
VIO Over 7 Million

OE-match connector and terminals ensure exact fit for peak conductivity to the engine wiring harness

High-temp OE-style plastic housing ensures precise fit and performance under extreme conditions

Precision-calibrated diaphragm and spring properly open and close to provide accurate voltage readings to the switch

Comes complete with O-ring so you don't need to buy additional parts

Additional Coverage for Chrysler, Dodge, Jeep, RAM Trucks, and Fiat Applications

LDP12
VIO Over 4 Million

LDP13
VIO Over 1.7 Million

LDP15
VIO Over 2 Million

How the ESIM works

The PCM uses the ESIM in several conditions. First, when the vehicle is running, the EVAP system is pressurized due to natural vapor pressure. If the EVAP system is sealed, the pressure overcomes the weight in the ESIM and the ESIM switch moves to the closed position. When the switch closes, the PCM recognizes that the system is sealed and then passes the test.

Second, when the engine is shut off after running at operating temperature, the PCM performs a small leak test. As the engine cools, the EVAP system builds vacuum. The vacuum overcomes the weight in the ESIM and causes the switch to move to the closed position. In this condition, the PCM also recognizes that the system is sealed and passes the test. If the PCM doesn't recognize the voltage change from the switch at the appropriate conditions, it will set one of several DTCs.

Common Trouble Codes

P0440 – General EVAP System Failure: This code is set if the PCM detects the EVAP system is not achieving or maintaining vacuum during the monitor test period.

P0441 – EVAP Purge System Performance: This code is set if the PCM detects that the purge flow ratio and the ESIM switch closed ratio are below pre-set calculations.

P0452 – EVAP Pressure Switch Stuck Closed: This code is set if the PCM does not detect an open ESIM switch following purge solenoid energizing.

P0455 – EVAP Purge System Large Leak: This code is set if the PCM detects that the ESIM switch changes from closed to open following the purge shutdown sealing period. The test is designed to discover a leak of 0.090" or greater.

P0456 – EVAP Purge System Small Leak: When the ignition is turned OFF and the EVAP system is sealed, a change in the fuel tank vapor temperature/pressure occurs. If the ESIM switch does not close within a calibrated time, the PCM calculates a small leak of 0.02".

P0457 – Loose Fuel Cap/Gross Leak Detected: This code is set if the PCM recognizes a leak greater than .090" following three cold engine startups.

Tech Tip: Make Sure the ESIM is Mounted Vertically

On most Chryslers, the ESIM mounts directly to the canister, eliminating the need for a mounting bracket. The ESIM must be mounted vertically. On vehicles where the canister is mounted on an angle, the ESIM requires an adaptor to maintain a vertical position. Here's a quick way to determine if the ESIM is installed correctly:

Correct Incorrect