



# Engine Management Program



## CAMSHAFT / CRANKSHAFT POSITION SENSOR

- The camshaft measures the rotation of the engine camshaft(s) to determine engine timing
- Vehicle ECU uses signal data to control fuel and ignition timing
- Located in the Cylinder Head or the Block
- The Crankshaft measures the rotation of the engine crankshaft to determine engine timing
- Vehicle ECU uses signal data to control fuel and ignition timing
- Located on the block



## MASS AIR FLOW SENSOR

- Measures the amount of air entering the engine
- Sensor data is used to adjust fuel trims for the correct stoichiometric ratio
- Located behind the air filter in the intake



## THROTTLE POSITION SENSOR

- Relays the angle of the throttle valve to the vehicle ECU
- Sensor data is used in calculating fuel trims, variable valve timing, idle air controls, and more



## ENGINE COOLANT TEMPERATURE SENSOR

- Provides engine temperature data to the ECU
- Controls radiator fans, electronic thermostats, instrument displays, and more
- Located in the Engine block, Radiator, thermistor housing, and heads



## ENGINE VARIABLE TIMING SOLENOIDS/ SPROCKETS

- Electronic or mechanical valves or gears used to adjust the engine's internal valves
- Used to improve performance, fuel economy, and emissions
- Located in the cylinder



## MANIFOLD ABSOLUTE PRESSURE SENSORS

- Calculate the amount and density of the air entering the engine
- Sensor data is used to adjust fuel trims for the correct stoichiometric ratio

Get more details at  
[walkerproducts.com](http://walkerproducts.com)

**YOUR FIRST CHOICE IN QUALITY PRODUCTS**



# Engine Management Program



## AIR TEMPERATURE SENSOR

- Calculate the temperature of the air entering the engine
- Sensor data is used to adjust fuel trims for the correct stoichiometric ratio
- Located in the Air intake, Mass Air Flow sensor, and throttle body



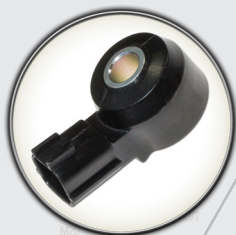
## IDLE AIR CONTROL

- Controls the amount of air entering the engine during start up and idling
- Either controlled by vacuum or the vehicles ECU
- Located on the Throttle Body



## VEHICLE SPEED SENSOR

- Determines rotational speed and sends to vehicle ECU or instrument display
- Either electronic sensors or mechanically driven gears
- Located on the transmission, differential, or wheel bearing hub



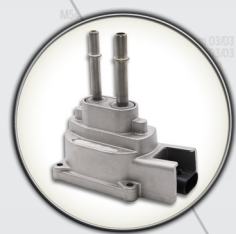
## KNOCK SENSOR

- Senses unique frequencies from the engine to ensure proper internal combustion
- Vehicle ECU uses signal data to adjust ignition timing to prevent detonation
- Located on the engine block



## OIL PRESSURE SENSOR

- Provides engine oil pressure data to the vehicle ECU or instrument panel
- Ensures properly functioning oil system to protect the engine either electronically or mechanically
- Located on the engine block



## FLEX FUEL SENSOR

- Used in Flex Fuel vehicles to calculate the amount of ethanol in the fuel system
- Vehicle ECU uses this data to adjust fuel trims and ignition timing depending on the ethanol ratio
- Located in the fuel line before the engine



WALKER PRODUCTS • 525 WEST CONGRESS STREET • PACIFIC, MO 63069  
 U.S. Corporate Office: 636-257-2400 • Fax: 636-257-6211  
 Customer Service: 636-257-1700 • Technical Support: 844-252-0114  
 U.K. Sales Office and Distribution Center: +44 (0) 121-459-8006  
 sales europe@walkerproducts.com • www.walkerproducts.com

## YOUR FIRST CHOICE IN QUALITY PRODUCTS