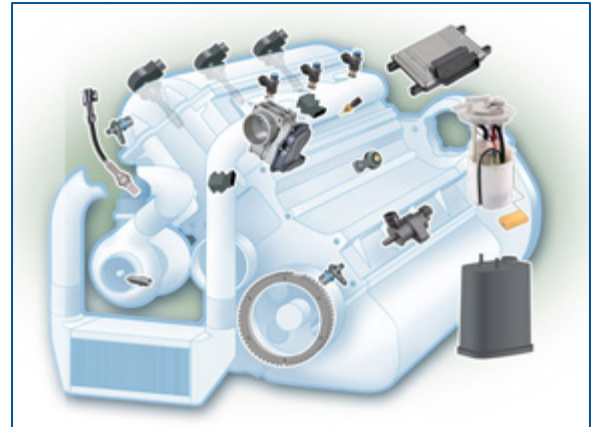


Delphi Multec[®] High Value and Mid-Function Engine Management Systems

Delphi Multec[®] High Value and Mid-Function Engine Management Systems are cost-effective families of systems that provide a complete, easy-to-manage package. They allow vehicle manufacturers to tailor content for a wide variety of engine programs — from the most cost-sensitive applications to those intended to achieve even higher levels of efficiency and performance. Delphi can provide all necessary algorithms and calibration services as well as the required components. Full on-board diagnostics are also available.



- **Delphi Multec High Value Engine Management Systems** — provide vehicle manufacturers with a base system of features necessary for most engine applications.
- **Delphi Multec Mid-Function Engine Management Systems** — with their additional content can help a manufacturer meet higher objectives for fuel economy, engine performance, and emissions. They can also support flexible fuel applications, including ethanol and compressed natural gas, which are important considerations for many markets.

Delphi's Multec[®] High Value and Mid-Function Engine Management Systems provide manufacturers with a complete, easy-to-manage package tailored to customer requirements.

Delphi Multec High Value and Mid-Function Engine Management Systems are designed to support vehicle manufacturers in markets that are now adopting Euro III, IV and V emissions standards. They can also help manufacturers meet more stringent emissions standards ranging up to U.S. LEV.

► Benefits

- System components are optimized to provide the vehicle manufacturer with the required performance objectives within a cost-effective, complete package.
- Delphi can calibrate the manufacturer's software or create software for the manufacturer.
- Delphi provides a single point of contact for the program so it is easy for the manufacturer to manage and execute.
- Delphi's experienced and knowledgeable local teams with systems development, calibration, and validation capabilities, can provide fast response and fast time-to-market. A complete engine management system can, in many cases, be delivered in less than 12 months.
- Scalable systems allow the manufacturer to use the same base engine and system to meet multiple local and export market requirements, including Europe and North America.

► Typical Applications

Delphi Multec High Value and Mid-Function Engine Management Systems are designed for vehicles with 3- and 4-cylinder multi port fuel injection (MPFI) gasoline engines. Delphi Multec Mid-Function Engine Management Systems with a Delphi Multi-Fuel System can also support alternate fuel requirements, such as ethanol and compressed natural gas.

► **Performance Advantages**

Delphi Multec High Value and Mid-Function Engine Management Systems provide an easy and convenient way to implement a complete system. They offer features that can help vehicle manufacturers improve fuel economy and enhance engine performance, while meeting targeted emissions standards. Delphi's unique understanding of the complete system and our full range of major component development capabilities contribute to superior component design and cost-effective systems.

► **Delphi Multec® High Value and Mid-Function Engine Management Systems Applications and Features Summary**

Applications	Delphi High Value EMS	Delphi Mid-Function EMS
Engine	3 or 4 cylinders	3 or 4 cylinders
Fuel Type	Gasoline	Gasoline E85 E0-E100 (with or without gasoline subtank) Compressed natural gas (CNG)
Emissions Standards Support Capabilities	Euro II Euro III Euro IV	Euro II, Euro III, Euro IV and Euro V U.S. LEV, U.S. ULEV II, U.S. SULEV and U.S. PZEV
Diagnostics	EOBD	EOBD and OBD II
Features and Content		
Electronic Control Unit	Delphi MT20 family	Delphi MT80 and MT60
Microprocessor	16 bit	32 bit
Torque Based Control	Available	Available
Fuel Injection	Multec® 3.5 Port Fuel Injector	Multec® 3.5 Port Fuel Injector
Ignition System	Waste spark pack, or coil per plug	Coil per plug
Throttle Control	Mechanical or electronic	Mechanical or electronic
Exhaust Gas Recirculation (EGR) Valve	Not applicable	Available
Cam Phasing	Not applicable	Dual independent intake and exhaust
Knock Control	Electronic vibration based	Electronic vibration based with enhanced digital signal processing
Turbo Charging Control	Mechanical	Mechanical and electronic wastegate control
Active Intake Tuning Control	Intake runner	Intake runner, plenum, or port throttle control
Engine Temperature Control	Not applicable	Available
Generator Control	Not applicable	Available
Starter Motor Control	Not applicable	Available
Transmission Control	Via Controller Area Network (CAN) to Transmission Control Module (TCM)	Via CAN to TCM Automated manual also available
Digital Engine Speed and Position Sensor	Crank and cam	Crank and up to two cams
Switching Oxygen Sensor	With planar element (two for EOBD)	With planar element (two for EOBD)
Air Meter/Mass Air Flow Sensor	Not applicable	Available
Purge Control Actuator	Available	Available
Fuel Vapor Pressure Sensor	Not applicable	Available
Manifold Absolute Pressure/Manifold Air Temperature (MAP/MAT) Sensor	Available	Available

Note: Delphi also offers Multec High-Function Engine Management Systems for even more feature choices, including: additional valve train products, gasoline direct injection (GDI) fuel systems, and hybrid powertrain capabilities. Contact Delphi for additional information.

▶ **The Delphi Advantage**

Delphi has a long history of supplying gasoline engine management systems and components that have helped automotive manufacturers overcome market and regulatory challenges. Delphi provides unique systems-level knowledge and analysis capabilities. Delphi offers a complete engine management systems portfolio, including: valve train, ignition, fuel injection, air and fuel management, electronics, sensors and actuators, fuel handling and evaporative emissions systems.

As a global leader in engine management systems technology, Delphi can help manufacturers meet emissions requirements, improve fuel economy and enhance performance. Delphi is a source for high value solutions and our expertise is built into every product. Delphi's flexible engineering approach encourages collaboration. And, Delphi has a thorough understanding of automotive markets around the world and a global network of resources.

