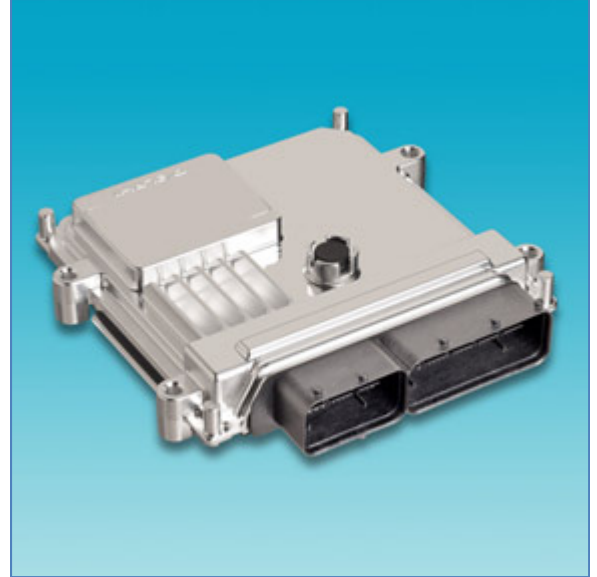


Delphi MT92 Engine Control Module

The Delphi MT92 Engine Control Module (ECM) is part of Delphi's MT9X Series of engine controllers for gasoline direct injection (GDi) and turbo charged engine programs. It assists the control of a vehicle's engine management system by instantaneously measuring multiple events enabling "real time" adjustments of fuel, air and spark to help the engine operate efficiently, reliably and economically.

The Delphi MT92 ECM offers manufacturers flexible, full-function engine control, especially for programs that must meet stringent emissions and On Board Diagnostics (OBD) standards, including:

- U.S. PZEV, SULEV, LEV2
- Korean KULEV
- Euro 3, Euro 4, Euro 5 and Euro 6
- European On Board Diagnostics (EOBD)
- U.S. OBD-I and II



Delphi MT92 GDi Engine Control Module

The Delphi MT92 ECM features an up-integrated design that reduces weight and wiring. The robust design and compact dimensions of the Delphi MT92 ECM enable flexibility for both under-hood and passenger compartment mounting options. Flash programming allows in-vehicle memory updates.

► Benefits

- High featured, low cost controller with 32-bit microprocessor offering up to 2 MB flash memory with expansion capability and in-vehicle application updates.
- Large flash memory size and fast microprocessor enhance the ability to support engine management systems with advanced valve train functionality for compliance with new emissions and diagnostics standards around the world. Software and microprocessor can be configured to meet specific customer requirements.
- Controllers use Delphi up-integrated, application specific integrated circuits (ASIC) that support high technology features (e.g., changing injector profile instantaneously to optimize performance in dynamic situations) and help reduce size, weight and cost.
- High pressure fuel pump control support to meet high pressure requirements of GDi applications.
- Small package size uses a standard FR4 circuit board enabling mounting flexibility and manufacturing flexibility. Compact, waterproof designs allow packaging flexibility.
- Electronic fuel control enables 4-cylinder sequential fuel injection applications.
- Electronic spark control enables 4-cylinder sequential spark applications, with or without high current coil drivers in the ECM, or waste spark ignition.
- Digital signal processing (DSP) provides knock control.
- Motor control for linear exhaust gas recirculation (LEGR) or variable charge motion (VCM).
- Advanced valve train function capabilities include: turbo charging, linear exhaust gas recirculation (LEGR), charcoal canister purge (CCP), dual independent cam phasing (DICP) and variable geometric intake solenoid (VGIS). Also includes capabilities for cruise control, model-based algorithms and flexible fuel programs.
- Dual connectors with engine and chassis connector separation with 154-way (94 + 60) connection system to help in wiring harness dressing and signal interfacing flexibility. The engine and chassis harness can be separately routed with ease. It also helps enhance ECM performance.
- Intake air control with DC motor electronic throttle control (ETC).

- Serial communication flexibility with controller area network (CAN), KW2000 or LIN to provide flexibility of interface with other modules, immobilizers and diagnostics tools.
- On-board boost power supply with 65 V or 50 V and customized integrated circuit for high voltage injector control eliminates the need for a stand-alone injector driver.
- Linear wide range air fuel sensor enables manufacturer to meet stringent emissions requirements.
- Pb-Free (RoHS) design to meet manufacturer requirements.
- Compliant to IP6K9K international sealing standards, which enables mounting even in a harsh under hood environment.

▶ **Typical Applications**

The Delphi MT9X Engine Control Module Series is designed to support most 3-, 4-, 6-, and 8-cylinder gasoline direct injection engine programs and turbo charged engine programs.

▶ **Availability**

Delphi MT9X Engine Control Modules will be available for production by late 2012. Engineering samples are available to automotive manufacturer customers. Contact Delphi for further information.

▶ **Performance Advantages**

The Delphi MT9X Engine Control Module Series offers features that can help vehicle manufacturers meet demanding engine performance targets, high-level fuel economy requirements, and stringent emissions regulations. Delphi MT9X ECMs help the engine management system increase fuel economy and reduce emissions, contribute to smooth vehicle acceleration, enable enhanced cold weather start-ups and help extend engine life.

Delphi's unique understanding of the complete engine management system and its full range of major component development capabilities contribute to superior component design and cost-effective systems.

▶ **The Delphi Advantage**

Delphi offers the benefits of more than 30 years' experience in high volume engine control module design and manufacturing. Delphi can provide customers with customized IC design, manufacturing and analysis. Delphi can also provide an engine control module or a complete system with software, algorithms, calibration and other components.

As a global leader in engine management systems technology, Delphi can help manufacturers around the world meet emissions requirements, improve fuel economy and enhance performance. Delphi is a source for high value solutions and our systems experience 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.