

**Technology for a greener tomorrow**

## Product Folio

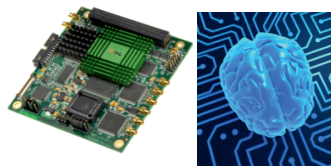
### IC- sensor



This is a volume hardware product- one unit per engine or per cylinder- modified fuel Injector, glow plug or spark plug.



### Controller



*Hardware + Software*

This is a volume product- one unit per engine- the data collector that processes the signal from the sensor. It houses proprietary code to decode and classify the In- cylinder current signal into usable combustion and emissions parameters.



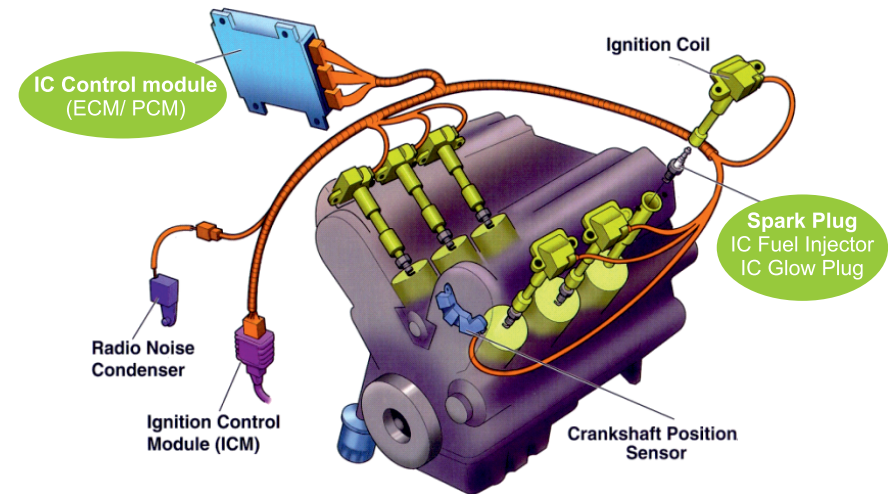
### Diagnostics kit



This is the interface to the controller to visualize the data and to perform diagnostics.

## How IC sensors can help meet stringent emissions standards in addition to targets for fuel economy and performance

- In-cylinder combustion sensors from IC facilitate high response electronic control feedback of the engine in real time
- Enables individual cylinder control on a cycle by cycle basis to meet upcoming fuel economy and emissions regulations and upcoming new engine technologies with advanced combustion regimes such as lean burn and emission control strategies such as advanced after treatment
- Volume production system and as such low initial and maintenance cost compared to pressure transducers
- Can be retro fitted in existing electronically controlled gasoline and diesel engines with no need to drill another hole in the cylinder head
- Most suitable for on(board engine diagnostics on a cylinder by cylinder basis which reduces the cost of inspection and repair over the life (time of the engine).
- Ensures best performance of the engine over its lifetime
- Can be utilized for remote monitoring and diagnostics of engines in fleets of taxis, light duty and heavy duty trucks from a central location



## In-cylinder sensing can be used in real-time for the following applications

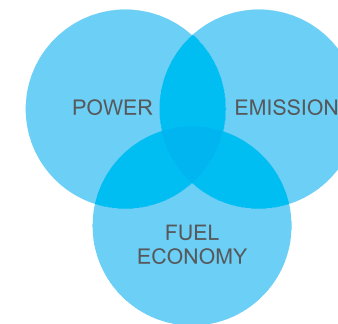
**Timing sensor:** Fuel neutral engines, transient calibration

**Combustion sensor:** Pressure parameters (CA50, peak pressure, etc.), combustion abnormalities, flame speed

**Performance sensor:** Cylinder imbalance

**Emissions sensor:** Particulates, Nox

**Pressure sensor:** Full pressure trace derived from the in- cylinder signal



IC LLC is a 100% subsidiary of DEP and IET. The company focuses on In- cylinder sensors, emission calibration tools and associated products.

**Vision:** To help build a better world with lesser emissions and greater fuel economy

**Mission:** 'An In- cylinder sensor in every Internal Combustion Engine' resulting in real time engine control for fuel economy, emissions and performance benefits

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