

I . M . O . D . E

Integrated Monitoring Of Diesel Emissions



DESIGNED AND MANUFACTURED IN CANADA BY

THERMAL LUBE INC.
QUALITY SOLUTIONS

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I.M.O.D.E: Integrated Monitoring Of Diesel Emissions

With today's significant environmental issues, there is more and more emphasis on keeping our planet clean. Government and Industry are now starting to find and improve on ways to reduce pollution. Excessive malfunctioning of diesel engines is a major contributor to air pollution and global warming, so one industry the Government is targeting is the Transport Industry, in particular, diesel truck fleets. The analysis of exhaust emissions can help trace problems and malfunctions in the engine, and help the operator stay in compliance with any applicable laws. In addition, the **I.M.O.D.E** can be used to validate new, cleaner technologies from diesel engine manufacturers.

Thermal-Lube's **I.M.O.D.E** is a unique diagnostic tool, designed to analyze diesel engine emissions. The **I.M.O.D.E** system can be easily connected directly to a vehicle's engine manifold in order to measure smoke opacity and levels of five combustion by-products before they are filtered out of the exhaust. The efficacy of DPF and BlueTEC® filters installed in an expanding range of zero-emissions vehicles can then be verified by sampling the exhaust after the filter, and comparing the results.

Exhaust gases are scanned in order to determine smoke opacity, as well as regulated or potentially regulated levels of five combustion gases:

- Hydrocarbons (HC)
- Carbon Monoxide (CO)
- Carbon Dioxide (CO₂)
- Oxygen (O₂)
- Nitrogen Oxides (NO_x)

Accurate Results

The **U.M.P.I.R.E.EXL**® software displays the absolute values for each of the parameters listed above, and also allows users to view the data in graphic form – all in real time. Results can then be compared to previous archived tests to monitor changes in engine condition.

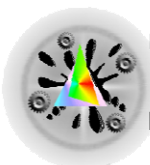
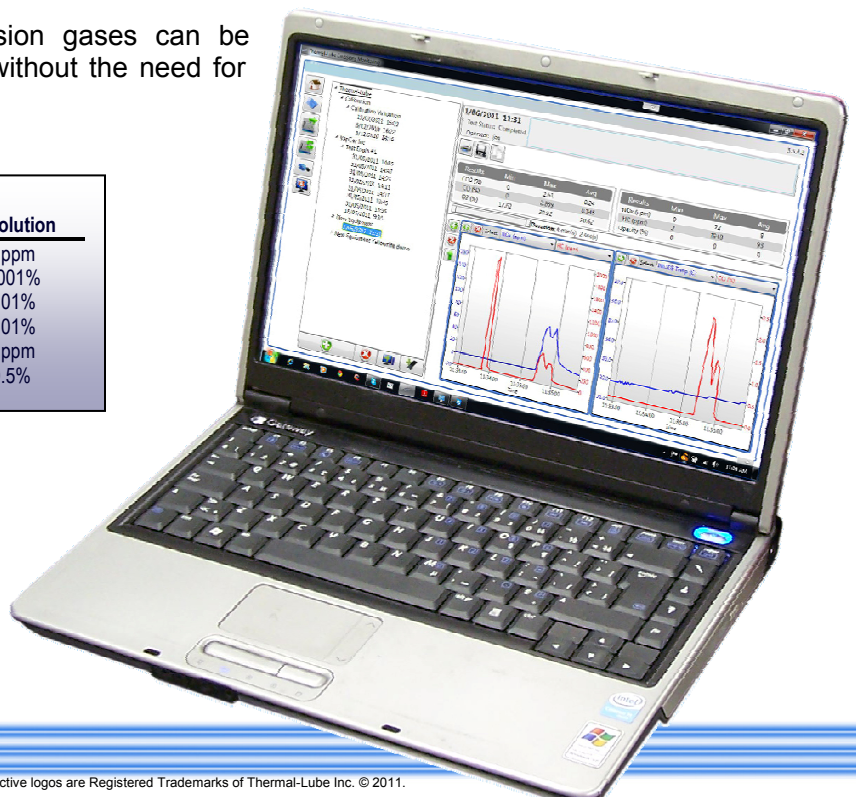
Reliable Construction

The analytical components are housed in a NEMA 4 self-contained, weatherproof, climate-controlled stainless steel case. The control computer communicates with the system hardware over a standard Ethernet connection.

Easy Operation

With **I.M.O.D.E**, analyzing engine emission gases can be completed easily and precisely on site, without the need for additional complex tests and equipment.

SPECIFICATIONS		
Parameters	Range	Resolution
HC (Hydrocarbons)	0 to 30,000 ppm	1 ppm
CO (Carbon Monoxide)	0 to 15%	0.001%
CO ₂ (Carbon Dioxide)	0 to 20%	0.01%
O ₂ (Oxygen)	0 to 25%	0.01%
NO _x (Nitrogen Oxides)	0 to 5,000 ppm	1 ppm
Smoke Opacity	0 to 100%	0.5%



POWERED BY THERMAL-LUBE'S
U.M.P.I.R.E.EXL
INTEGRATED SOFTWARE SYSTEM