



IN COOPERATION WITH



# PARAFUEL™

## Comprehensive Fuel and Crude Oil Analysis through NIR Spectroscopy



The ParaFuel™ NIR Process and laboratory analyzers from LT Industries provide a comprehensive array of unique solutions to solve the most challenging measurements with high performance:

- A full range of in-line/in-process measurement tools
- Support of both laboratory and in-line analytical requirements with a single technology
- Easily customizable probes, user interface, and methods for unique or complex requirements

### • Monitoring Fuels and Crude Oils

With the ParaFuel™ analyzer, accurate measurement of the properties of petrochemical products and crude oils is easy. Whatever the analytical need – inspection of crude oil or finished products, inline property measurements, or validating shipments – the ParaFuel™ can do the job. The optical analysis technique allows for easy integration and rapid inline measurement.

### • In-Process Quality Measurements

ParaFuel™ Process Systems measures key chemical and physical properties rapidly and accurately directly in process, to monitor changing process conditions in real time and to adjust as necessary. The simple test procedure allows for greater experimental repeatability — and it does not require special operator skills.

### • Gain knowledge of the whole process

With the capability to measure 20 points with a single analyzer, you can validate quality and performance at all stages — from crude samples at the well to downstream refining. Improve your process knowledge and control.

### • Measuring Tools for all conditions

The ParaFuel™ Process Analyzer comes complete with probes and flow cells built to suit your measurement needs. They are available in a variety of lengths, configurations and materials depending on your measurement requirements. High pressure and temperature sampling probes can withstand the conditions associated with oil production and refining.

### • Seamless Integration

Instruments are designed for direct integration into existing control

systems via the LTBUS automation & communication software. The ParaFuel™ Analyzer can communicate directly via standard protocols such as Modbus and 4-20mA.

### • Benchtop Analyzer

The ParaFuel™ Benchtop System provides the same high quality measurements as the process system.

### Key Features

- Designed for 24/7 operation
- Measure up to 20 process points with one analyzer
- Probes and flow cells for continuous processes
- Easy integration into existing DCS
- Fully automated user interface
- Remote diagnostic capability
- Remote update capability
- Enclosures for protection against dust, water and environment



## REAL TIME ANALYSIS

Automated, nondestructive inline analysis, completed within seconds, with results sent to your DCS, PLC, or LIMS:

- **Control** the use of high-value crudes and chemicals — Measure concentrations and use only what you need
- **Validate quality** throughout the process — Determine where and when product falls out of specification
- **Make process adjustments** in real time — Reduce waste by adjusting processes rather than discarding batches
- **Reduce energy consumption** and increase process efficiency — Accurately determine concentrations and reaction progress
- **Design quality** into your process — Achieve higher standards than are possible with batch testing alone

## BENEFITS

- ParaFuel™ analyzers are utilizing LT Industries' knowledge of over 30 years experience in developing NIR analyzers
- Fast inline or laboratory measurement
- Real time monitoring of multiple process streams
- Automated results on a simple interface
- Validation of incoming product
- Improved product quality
- Improved repeatability
- Reduced expenses
- Minimal operator training
- Rapid return on investment

 <b>PARAFUEL™ Petrochemical Analyzer</b>				 <b>PARAFUEL™ Crude Oil Analyzer</b>			
<b>Fuel Properties (Gasoline, Diesel, Kerosene, etc.)</b>				<b>Common Measurements</b>			
RON	Flash Point	Aromatics, v%	Ethanol	Vapor Pressure	Wax Content	Water Content	Solids
MON	Cloud Point	Olefins, v%	Distillation		Pour Point	Aniline Point	Yields
Cetane	CFPP	MTBE, v%	Evaporation	Viscosity	Freeze Point	SARA	Asphalt
RVP [kPa]	Smoke Point	Saturates, v%	Color	CCR	Cloud Point	Total Aromatics	Asphaltene Content
Density/ API	Specific Gravity	Benzene, v%	Pump Quality	Methanol	TBP		
<b>Petrochemical Properties</b>				Olefins	Distillation Points	API Gravity / Density	Asphaltene Deposition
p/o/m-Xylenes	Oxygenates	Aromatics	Olefins	Hydrogen			
Paraffins	Isoparaffins	Acids in Alkylation		C/H Ratio	n-Paraffins	Emulsion Stability	Asphaltene Precipitation
Napthenes	C-Number	High/LowRON	BTX	Acidity/ TAN	Sulfur		
<b>PARAFUEL™ MODELS</b>							
Process / Single Channel		ParaFuel™ NIR Process Analyzer + one (1) High Energy Bubble Shedding Probe					
Process / Multi Channel		ParaFuel™ NIR Process Analyzer + Multiplexer + Up to twenty (20) Probes					
Laboratory / Benchtop		ParaFuel™ NIR Benchtop Analyzer + one (1) Dip Probe					
<b>TECHNICAL DATA</b>							
Scan Time		30 seconds (user-adjustable)					
Power Supply		100-240 V AC, 50/60 Hz					
<b>PROCESS ANALYZER</b>							
Classification		C1D2 Standard, C1D1 Optional					
Control System Communication		Modbus RTU Standard (Options: Modbus TCP, 4-20 mA Analog Output Module)					
Sample		Up to 150°C and up to 7000 kPa (1000 psi)					
<b>BENCHTOP ANALYZER</b>							
Data Storage		Data automatically logged and stored; Standard TCP/IP connection for integration to LIMS					
Dimensions (WxHxD)		305 x 397 x 349 mm (12" x 15" x 13")					

Your distributor:

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