



PAC

solid partners
proven solutions



OptiFuel

Precision and portability in a top of the line FTIR Fuel Analyzer

- 🌐 Superior performance and ruggedness
- 🌐 Expert service and support worldwide
- 🌐 Unmatched warranty on critical components

OptiFuel

ACCURATE, EASY AND RELIABLE FUEL ANALYSIS

For more than 20 years, PAC has been at the forefront of infrared (IR) fuel analysis with its PetroSpec products. Now we are combining the best of our GS PPA, TD PPA and QuickSpec capabilities into one analyzer and adding the latest FTIR technology into the most robust fuel analyzer in the market.

The user-friendly system allows the operator to measure many properties at once with a simple touch of a button, using free factory calibration models. Users can customize the models with local samples in a few seconds. These custom models can easily be cloned to all your OptiFuels, even remotely, if necessary.

GLOBAL SUPPORT

- Extensive support network through our offices and over 140 distributors worldwide.
- ISO-9001:2015-satisfactory manufacturing facility and service repair centers
- Skilled certified service technicians



KEY FEATURES

EXTENDED WARRANTY

- 2-year standard system warranty
- **10-year optics warranty on the full range, laser-referenced Michelson interferometer**
- **5-year warranty on the IR light source**



SUPERIOR PERFORMANCE

- Compliance with ASTM, EN, ISO methods
- Calibration lasts for years
- High resolution wide range FTIR - ATR single flow cell
- Measure multiple parameters at once



RELIABLE DESIGN

- Modern temperature-controlled laser referenced Michelson interferometer
- Humidity and vibration resistant ZnSe mirrors, beam splitters and non-moving sample cell



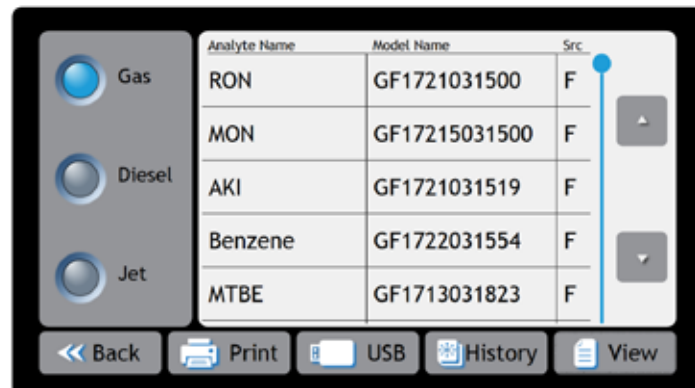
LOW COST OF OWNERSHIP

- One instrument measures all types of samples without the need for extra hardware
- On-site, fast and minimal maintenance
- Low cost of consumables



USER-FRIENDLY INTERFACE

- Intuitive interface requires minimal user training
- Large touch-screen allows easy navigation
- On-system, one-button-push model update with regional samples
- One-step, rapid calibration transfer and cloning
- Easy-to-use LIMS connectivity



INCLUDED PARAMETERS

Every OptiFuel comes with more than 50 different calibration models built using hundreds of real-life samples of gasoline, diesel and jet fuel, from all over the globe, following ASTM E1655. These calibration ranges are based on current factory models, but they all can easily be expanded in the field. Calibrations can easily be cloned and transferred to additional units.

GASOLINE



Properties ¹	Range ²
Research Octane Number (RON)	89-103
Motor Octane Number (MON)	80-93
Anti Knock Index (AKI)	85-98
Distillation Points	
IBP	25-50 °C (77-122 °F)
T10	38-67 °C (91-153 °F)
T50	66-117 °C (150-243 °F)
T90	123-178 °C (122-253 °F)
FBP	171-221 °C (340-430 °F)
Evaporation Points	
E70	11-53 v%
E100	32-75 v%
E150	79-97 v%
E180	90-99 v%
E200	29-74 v%
E300	77-100 v%
DVPE	42-108 (kPa)
Driveability Index	860-1300
Vapour Lock Index (VLI)	500-1450

Properties ¹	Range ²
MTBE	0-20 v%
ETBE	0-20 v%
TAME	0-20 v%
Methanol	0-10 v%
Ethanol	0-100 v%
DIPE	0-20 v%
tert-Butanol	0-15 v%
Total Oxygen	0-50 m%
Olefins	0-28 v%
Total Aromatics	0-50 v%
Aromatics C7	0.8-18 v%
Aromatics C8	0.5-16 v%
Benzene	0-6 v%
MMT	0-20000 mg/L
Manganese	0-5000 mg/L
VOC	1040-2171 mg/mi
VOC Performance	-27.6 to 48.1%
Saturates	0-100 v%
Density (built-in U-tube cell)	0.6 - 1.2 g/cm ³

DIESEL



Properties ¹	Range ²
Cetane Number	41-66
Cetane Index	42-65
Cetane improver (2-EHN, IPN)	30-12000 mg/L
FAME (low to high concentration)	0-100 v%
Distillation Points	
IBP	145-220 °C (293-428 °F)
T10	160-260 °C (320-500 °F)
T50	170-295 °C (338-563 °F)
T90	180-360 °C (356-680 °F)
T95	260-390 °C (500-734 °F)
FBP	195-365 °C (383-689 °F)
Evaporation Point (E250)	5-70 v%
Density (built-in U-tube cell)	0.6 - 1.2 g/cm ³

JET FUEL



Properties ¹	Range ²
FAME	0 - 100%
Density (built-in U-tube cell)	0.6 - 1.2 g/cm ³

NOTES:

1. Range and quality of prediction is related to database used.
2. The lowest concentration value is related to the Limit of Detection (LOD).



DENSITY MODULE

An ASTM compliant u-tube density module, capable of measuring from 0.5 g/cm³ to 2.0 g/cm³, is integrated in each OptiFuel to provide direct density reading. Per ASTM D1250-04 algorithm, densities of hydrocarbon samples can be reported at 15° from 0.6 to 1.2 g/cm³. This eliminates the need for an external density meter.



ADDITIONAL PARAMETERS

Unlimited additional properties can be added or updated quickly per user-defined requests.

GASOLINE



Sum Parameters
Oxygenates
Esters
Di-Olefins
Oxygenates
Iso-Propanol
2-Butanol
Dimethoxymethane (DMM)
Dimethylcarbonate (DMC)
Methylacetate
Ethylacetate
Isobutylacetate
Sec-Butylacetate
TAAE
Anilines
Aniline
N-Methylaniline
o-Methoxyaniline
o-, m-, p-Toluidine
N,N-Dimethylaniline

Aromatics
Toluene
o-, m-, p-Xylene
Ethylbenzene
Propylbenzene
2-Ethyltoluene
3-Ethyltoluene
4-Ethyltoluene
Pseudocumene
Hemellitrol
Mesitylene
Iso-Durene
Durene
Naphthalene
Other aromatics
Octane Boosters
CMT
Dicyclopentadiene (DCPD)
Nitromethane
Others
RVP

DIESEL



Distillation/Recovery Points
CFPP
Viscosity
Total Aromatics
Polynuclear Aromatics (PNA)
Benzene
Dimethoxymethane
Biodiesel (FAEE)
Vegetable Oil

JET FUEL



Distillation/Recovery Points
Freezing Point
Flash Point
Smoke Point
Viscosity
Total Aromatics
Polynuclear Aromatics (PNA)

ETHANOL



Ethanol
Water
Methanol
Denaturant

METHANOL



Methanol
Density

Global sample
database
analyzed by



ROAD-TESTED FOR MOBILE APPLICATIONS

OptiFuel comes in a rugged, yet elegant, design with a friendly user interface, which makes it ideal for refineries, pipelines, terminals and mobile labs.

We used only the best materials to ensure it delivers unmatched performance in any application, and tested through intense shock, vibration and drop, per ASTM and MilSpec.

OptiFuel's handle and small foot print provides the perfect mobility for any remote field requirements.



MOBILE ACCESSORY PACKAGE



Anti-vibration platform



High-performance lithium ion battery with power supply



Vehicle adapter

NOTE: OptiFuel runs for over 5 uninterrupted hours on just the battery pack, untethered from a vehicle or an external power outlet.

COMPLETE CONNECTIVITY

Easily connect your OptiFuel to your network printer or LIMS system. You can also digitally clone your OptiFuel with a USB drive.



METHOD-APPROVED

Compliance	Correlation			Method Applications
<ul style="list-style-type: none"> Benzene: <ul style="list-style-type: none"> ASTM D6277 EN 238 FAME: <ul style="list-style-type: none"> ASTM D7371 Oxygenates: (MTBE, ETBE, TAME, DIPE, Methanol, Ethanol, tert-Butanol) <ul style="list-style-type: none"> ASTM D5845 Density: <ul style="list-style-type: none"> ASTM D7777 ISO 15212 IP 559 	ASTM: <ul style="list-style-type: none"> D1319 D1322 D1840 D2386 D2699 D2700 D323 D3828 D3948 D4053 D4737A D445 	<ul style="list-style-type: none"> D4815 D5191 D56 D613 D6371 D6378 D6379 D6839 D7153 D7806 D86 D976 	<ul style="list-style-type: none"> EN 116 EN 13016 EN 14078 ISO 22854 ISO 3104 ISO 3405 ISO 4264 ISO 5163 ISO 5164 ISO 5165 SGS M2533 	Provides correlation result for methods in specifications: <ul style="list-style-type: none"> D1655 D4806 D4814 D975 EN 228 EN 590 DEFSTAN 91-091

PAC SOLUTIONS FOR PIPELINES, TERMINALS AND MOBILE LABS



OptiFlash Small Scale Flash Point Analyzer



OptiPMD Micro Distillation Analyzer



VIDA Density Meter



TECHNICAL SPECIFICATIONS

Spectrometer Type	FTIR Michelson Interferometer - Thermally controlled laser referenced		
Standard Test Methods	<ul style="list-style-type: none"> Compliance: <ul style="list-style-type: none"> Benzene: ASTM D6277, EN 238 FAME: ASTM D7371 Oxygenates (MTBE, ETBE, TAME, DIPE, Methanol, Ethanol, tert-Butanol): ASTM D5845 Density: ASTM D7777, IP 559 Correlation: D1319, D1322, D1840, D2386, D2699, D2700, D323, D3828, D3948, D4053, D4737A, D445, D4815, D5191, D56, D613, D6371, D6378, D6379, D6839, D7153, D7806, D86, D976, EN 116, EN 14078, EN ISO 13016, ISO 15212, ISO 22854, ISO 3104, ISO 3405, ISO 4264, ISO 5163, ISO 5164, ISO 5165, SGS M2533 Correlation result for specifications: D1655, D4806, D4814, D975, EN 228, EN 590, DEFSTAN 91-091 		
Mirror Design	Friction-free, vibration resistant, cube corner mirror		
Mirror and Beam Splitter	Humidity resistant ZnSe		
Density Measurement	Oscillating U-tube cell with temperature sensor		
Units of Measurement	%m, %v		
Scan Range	550 - 4000 cm ⁻¹		
Spectral Resolution (max.)	2 cm ⁻¹		
Measurement Time	30 seconds	Warm up time	< 30 seconds
Sample Introduction	From sample container		
Sample Volume	8 ml		
Calibration	Factory calibrated with matrix of several hundred global fuels (analyzed by SGS)		
Regional Calibration Update	Yes		
Cleaning	Solvent (≥ 99.9% Toluene)		
Operating Temperature	5°C to 35°C	Storage Temperature	-40°C to +85°C
Humidity	0% to 90% RH		
Leak Test	Automatic		
Filter Replacement Monitor	Automatic		
Fume Sensor	Yes	Real-time Safety Monitoring	Yes
Display	7" color touch screen		
Interface	3x USB - 1x Ethernet		
Instrument Memory	100,000 test results		
Power Requirements	110V to 230V - 50/60 Hz, 60 W. 24V battery pack option available, connectable to 12V.		
Dimensions & Weight	8.5" x 14" x 16" (W x H x D) 32 lbs (14.5 kg)		
Packaging	24" x 24" x 24" (W x H x D) - 56lbs (25.4 kg)		
Certifications	ISO 9001:2015, CE, ROHS II		

Continuing research and development may result in specifications or appearance changes at any time

ABOUT PAC

PAC develops advanced instrumentation for lab and process applications based on strong **Analytical Expertise** that ensures **Optimal Performance** for our clients. Our analyzers help our clients meet complex industry challenges by providing a low cost of ownership, safe operation, high performance with fast, accurate, and actionable results, high uptime through reliable instrumentation, and compliance with standard methods.

HEADQUARTERS

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Our solutions are from industry-leading brands: AC Analytical Controls, Advanced Sensors, Alcor, Antek, Herzog, ISL, Cambridge Viscosity, PSPI, and PetroSpec. We are committed to delivering superior and local customer service worldwide with 16 office locations and a network of over 50 distributors. PAC operates as a unit of Roper Technologies, Inc., a diversified technology company and a constituent of S&P 500, Fortune 1000, and Russell 1000 indices.



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 PAC representative closest to you.