



FUEL ANALYSIS



# MINISCAN IRXpert

## Intelligent Portable Multi-Fuel Analyzer

The MINISCAN IRXpert is the first completely portable multi-fuel analyzer for Gasoline, Diesel and Biofuel Blends, which combines the advantages of mid-FTIR and near-FTIR spectroscopy for utmost measurement accuracy. More than 70 fuel parameters are accurately determined by scanning the complete spectrum with superior resolution. Based on Grabner Instruments profound knowledge in fuel analysis, the MINISCAN IRXpert is designed as an intelligent, self-learning analyzer. At the push of a button the instrument automatically analyses new fuel parameters.



### • Comprehensive Fuel Analysis

More than 12,000 data points from the infrared spectrum are used to determine the concentrations of molecules present in the sample. The MINISCAN IRXpert spectrum yields a "fingerprint" for 40+ important fuel components, compounds and properties. An integrated density meter allows for direct determination of fuel density.

### • Mid-IR and NIR for Highest Accuracy

Compound analysis is performed according to the international standards ASTM D5845 for oxygenates, ASTM D6277 and EN 238 for Benzene and EN 14078 for Biodiesel. By using spectrum information from the NIR and mid-IR region, the MINISCAN IRXpert

achieves unmatched accuracy for fuel property determination. Prediction for octane number, AKI and cetane number is based on ASTM D2699, 2700, 613, ISO 5163, 5164, 5165, distillation on ASTM D86, ISO 3405 and vapor pressure on ASTM D6378, D5191, D323, EN 13016.

### • Maximising Ease of Use

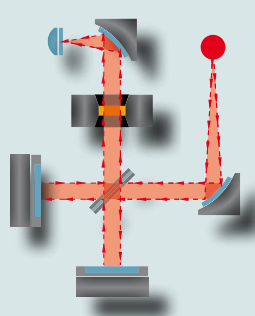
The IRXpert comes fully configured for testing fuels right from the street. A high end full color touch-screen facilitates menu navigation and allows in depth spectrum analysis. USB and Ethernet interfaces facilitate quick data-transfer, printing, LIMS integration and remote control and service. For field use the MINISCAN IRXpert can be run via a 12V car adapter.

### • Train the Analyzer, not the User!

Adding new parameters to the IRXpert is simple: Just add a database and the analyzer creates the optimum measuring model - at the push of a button! For maximum flexibility an unlimited number of new parameters can be added.

### Key Features

- Portable Mid-IR and NIR Analyzer for Gasoline, Diesel and Biofuel Blends
- Full Spectrum: 12,900 data points
- Superior Resolution: 2cm<sup>-1</sup>
- OST - Optimized Scanning Technology™
- Temperature & Laser Controlled System
- Unlimited number of parameters
- Self-learning chemometrics
- WORKS™ - Worldwide Online Remote Control and Services

GASOLINE				DIESEL			
<b>PROPERTIES <sup>1)</sup></b>		<b>Range</b>		<b>PROPERTIES <sup>1)</sup></b>		<b>Range</b>	
RON		70 - 105		Cetane Number		20 - 80	
MON		65 - 100		Cetane Index		20 - 80	
AKI		67 - 103		Distillation / Recovery		IBP, T10/50/65/85/90/95, FBP R250, R350	
RVP & DVPE		35 - 95 kPa		Density		0 - 3 g/cm <sup>3</sup> (r <sub>s,d.</sub> = 0.0005 g/cm <sup>3</sup> )	
Distillation / Evaporation		IBP, T10, T50, T90, FBP, E70, 100, 150, 200, E300		UNLIMITED user-defined parameters			
Density		0 - 3 g/cm <sup>3</sup> (r <sub>s,d.</sub> = 0.0005 g/cm <sup>3</sup> )		<b>COMPONENTS</b>		<b>Range <sup>2)</sup></b>	
Driveability Index				Total Aromatics		0 - 60 v%	
VOC emissions calculator				Poly Nuclear Aromatics		0 - 50 v%	
Vapor Lock Index (VLI)				Cetane Improver: EHN, IPN		0 - 10000 ppm	
UNLIMITED user-defined parameters				FAME		0 - 40 v%	
<b>COMPONENTS</b>				FAEE		0 - 40 v%	
<b>Oxygenates</b>	<b>Range <sup>2)</sup></b>	<b>Aromatics</b>	<b>Range <sup>2)</sup></b>	 <p>Principle of Operation FTIR Spectrometer</p>			
MTBE	0 - 20 m%	Benzene	0 - 10 m%				
TAME	0 - 20 m%	Toluene	0 - 20 m%				
ETBE	0 - 20 m%	o, p, m-Xylene	0 - 20 m%				
DIPE	0 - 20 m%	Ethylbenzene	0 - 20 m%				
Methanol	0 - 15 m%	Propylbenzene	0 - 20 m%				
Ethanol	0 - 25 m%	Mesitylene	0 - 20 m%				
Isopropanol	0 - 20 m%	Iso-Durene	0 - 20 m%				
2-Butanol	0 - 25 m%	Naphtalene	0 - 10 m%				
tert-Butanol	0 - 25 m%	Pseudocumene	0 - 20 m%				
Other Oxygen.	0 - 20 m%	2,3,4-Ethyl toluene	0 - 20 m%				
		Other Aromat.	0 - 20 m%				
<b>Total Parameters</b>		<b>Octane Boosters</b>					
Total Oxygen	0 - 12 m%	MMT (mg/l)	0 - 10000				
Total Aromatics	0 - 60 m%	DCPD	0 - 15 m%				
Total Saturates	0 - 100 m%	N-Me-Aniline	0 - 5 m%				
Total Olefins	0 - 80 m%	Nitromethane	0 - 9 m%				
Di-Olefins	0 - 15 m%						

## TECHNICAL DATA

Standards	ASTM D5845, D6277, D7777, D7806, EN 238, EN 14078, ISO 15212
Property analysis based on	ASTM D86, D323, D5191, D6378, D613, D2699, D2700, ISO 3405, 5163, 5164, 5165, EN 13016
Spectrometer	Temperature Controlled, Dry Gas Protected, Dual Cell, Mid-FTIR and Near-FTIR
Density Measurement	Temperature Controlled Oscillating U-Tube Cell
Warm Up / Scanning Time	1 min. / 80s (Multiple Scans)
Units of Measurement	v%, m%
Display	8.4" full color touch screen
Interfaces	4x USB, Ethernet
Power Supply	90-264 V AC, 47-63 Hz, 200 W (field application with DC adaptor for 12 V vehicle battery)
Dimensions (WxHxD), Weight	253 x 368 x 277 mm (10 x 14.5 x 10.9 inch), 12 kg (26 lb)

<sup>1)</sup> Property Prediction depends on database used.

<sup>2)</sup> Minimum value is the LOD (Limit of Detection).

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