

# PAL

PORTABLE ANALYZER FOR LUBE

## PRODUCT HIGHLIGHTS

- Small and rugged
- Ideal for on-site oil analysis
- Highly accurate FT-IR analysis
- No sample preparation
- No hazardous reagents
- Analysis completed in 1 minute
- ASTM methodology
- USB connection to any PC

## PRODUCT CAPABILITIES

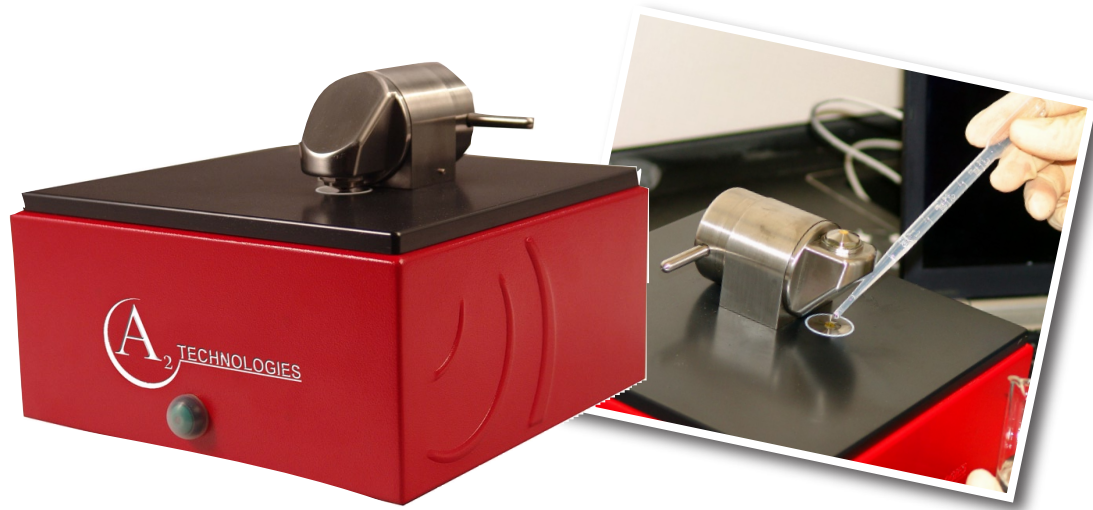
- Monitor turbine, gear and hydraulic fluids
- Water to 100 ppm
- Oxidation and nitration byproducts
- Key additive depletion
- Contamination by other fluids

## SYSTEM SPECIFICATIONS

- Display External computer
- Size 8" X 8" X 4.5"
- Weight 8 lbs.
- Operating Ranges -10 C to 50 C  
14 F to 122 F
- Power 100/120/240 VAC  
50/60 Hz  
12 VDC Option
- Warm Up Time 10 minutes
- Response Time 2 Minutes

## SYSTEM REQUIREMENTS

- Operating System Windows XP™
- Processor Pentium IV 3GHZ
- Memory Ram 1GB
- Hard Disk 40GB



## Powerful Technology for On-Site Oil Analysis

The PAL (Portable Analyzer for Lubrication) is an extremely small mid-IR fingerprint region spectrometer specifically designed for on-site oil analysis.

The PAL was designed to give the user the capabilities of a much larger, laboratory FTIR system without the complexity, maintenance requirements or cost. The software is designed to provide immediate answers to the user without the need to understand infrared spectroscopy. With the touch of a button, the PAL system provides valuable information about the condition of a lubricating fluid. This allows the user to make quick decisions in the field and then make an immediate assessment of the remediation step.

### A One Minute PAL Analysis Yields:

- Water - monitor for intrusion at very low levels
- Oxidation - Measure oxidation and nitration by-product formation as they occur
- Additive Depletion - accurately determine critical additive levels such as anti-oxidant, anti-wear and extreme pressure additives
- Contamination - ensure the proper lubrication has been shipped to you and that it is fit for service before accepting delivery.

### Simple to Use - Minimal Training Required

With the PAL's innovative sampling interface, no sample preparation is required and only 2 drops of sample is needed for analysis. The analysis take less than 2 minutes and cleanup takes seconds. Because the PAL's software and user interface are intuitive, no technical training is required to use the system. Screen prompts assist the user in performing an analysis and the results are presented in an easy-to understand format.

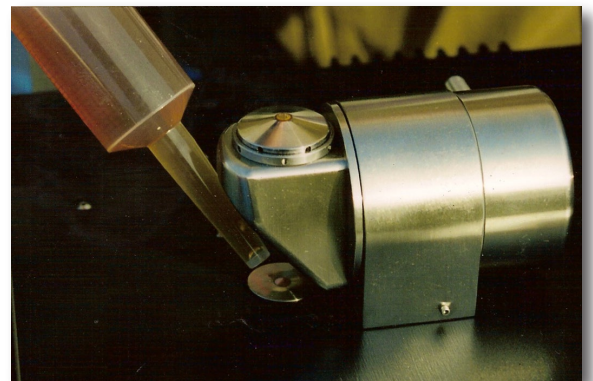
# Applications



- TURBINE OIL • HYDRAULIC FLUID • GEAR OIL • CRANKCASE OIL • FUEL ANALYSIS
- PETROCHEMICAL BLENDING • REGULATORY COMPLIANCE • INCOMING QA/QC

## Sample Measurement with the PAL

A transmission sampling system (TumbIIR™) quickly and easily analyzes the identity and amount of components in a liquid. Simply place a drop on the lower window and rotate the top diamond window into place until it locks, effectively sandwiching the liquid - this provides a reproducible path length every time. The transmission sampling system is ideal for quantifying minor components in a liquid and is fully compliant with ASTM recommended methodology.

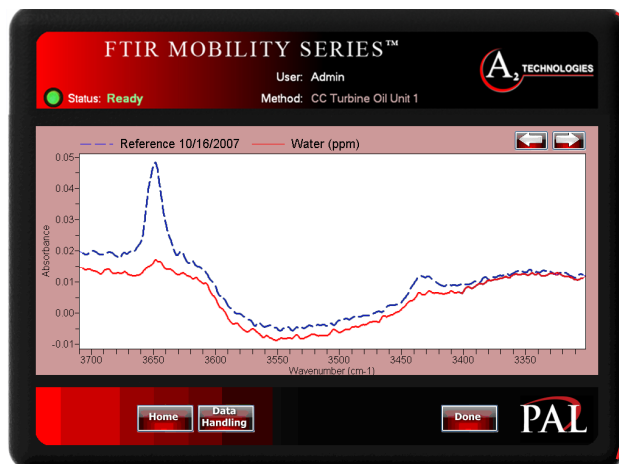


### Technical Details

\*Due to ongoing product development, specifications subject to change without notice.

## Software

Software is designed to be extremely user friendly and presents data in a clear format with meaningful answers. Components of interest in the oil that are approaching a critical threshold or above the threshold are highlighted in yellow and red respectively, with green reserved for components that remain within specification. To see why a parameter is red, simply double clicking it allows the user to see the used oil compared to the new oil.. All thresholds for action are editable by the user to allow customization of a method to specific assets or specific lube formulations.



**FTIR MOBILITY SERIES™**

User: Admin  
Method: CC Turbine Oil Unit 1

Status: ● Ready

Recommendation: A critical level is shown for one or more of the components; the fluid should be changed immediately.

Results:

Name	Value	Low Threshold	High Threshold
Phenolic Antioxidant	110 (critical)	100	0
Aminic Antioxidant	72	100	0
Nitration	16	0	100
Oxidation	44	0	100
Water	200		250

Home Data Handling Details Done PAL

