Spectro Scientific
AMETEK

FieldLab 58C

PORTABLE FLUID ANALYSIS SYSTEM

POWER GENERATION | Lubricant Condition and Advanced Wear detection

FieldLab 58C is a portable, integrated fluid analysis system that provides quick and comprehensive oil analysis in the field.

TriVector reports with lubricant chemistry, contamination, and abnormal (>4 micron) wear debris – sourced from both iron and white metal (non-ferrous) components – with intelligent trending, provides the time need to avoid issues, or make plans to resolve them.

The FieldLab 58C integrated system requires only a few milliliters of oil to complete four comprehensive tests to help maintain readiness of critical assets while economically managing maintenance costs.

Key Features

- Rugged design with battery power for on-site field use
- No solvents or chemicals required
- Complete oil analysis lab with 4 technologies integrated into a small case
  – X-Ray Fluorescence (XRF) spectrometer for elemental analysis
  – Filter Particle Quantifier (FPQ) pore blockage particle counter
  – Infrared (IR) spectrometer
  – Kinematic viscometer (40°C)
- 4 tests generate more than 20 oil analysis parameters in less than 10 minutes
- Built-in controller for measurement, data, and asset with touch screen interface
- Uses only 10 mL of oil
- ASTM compliant

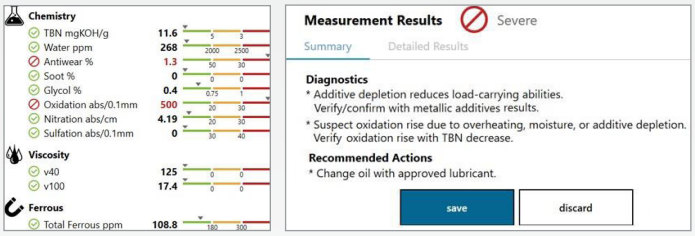
TURBINES | **MOTORS** | **PUMPS** | **GEAR DRIVES**

FieldLab 58C PORTABLE FLUID ANALYSIS SYSTEM

Easy to Use

- No solvents or reagents and small sample volumes required
- Intuitive Interface and simple workflow minimizes human error
- Built-In Video Instruction for inexperienced users

Smart diagnostics, flexible alarm setting



- Easy to read oil analysis report with clear Observations, Diagnostics, and Recommended Actions.
- Factory alarm limit tables for common components
- User-customizable alarm limits and diagnostic sets for continuous improvement over time

Optional Interface with TruVu 360 Fluid Intelligence Software

- Summary dashboards for visibility into asset condition and fleet readiness
- Management dashboard for CBM oil-analysis program management views of cost savings and program key performance indicators (KPIs)

KEY PARAMETERS

MACHINE WEAR
› **Up to 16 elements for particles: Si, Al, Cr, Ti, Fe, Ni, Pb, Cu Sn, Mo, Ag, Zn, V, Mg, W, Co**

CONTAMINATION
› **Particle count >4 micron (measured), ISO codes**
› **Water, glycol, soot**

CHEMISTRY & VISCOSITY
› **Oxidation, nitration, sulfation, TAN, TBN**
› **Viscosity @40°C, calculated viscosity @100°C**

PRINCIPLES OF OPERATION

Particle count and elemental analysis – ASTM D8127

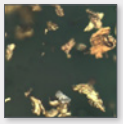
› WEAR › PARTICLE CONTAMINATION

Particle counts are generated using our patented FPQ pore blockage particle counter (ISO 21018-3). It captures the particles of interest for severe wear detection onto a unique filtergram. This debris may now be measured on the companion XRF spectrometer for immediate results in ppm for up to 16 elements.

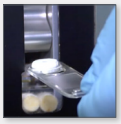
Wear and contamination particles larger than 4 microns deposit on the filtergram, and are tested using an X-Ray Florescence (XRF) spectrometer. The concentration (in ppm) for up to sixteen different elements is reported.

The filtergram coupon can be stored for future analysis, such as microscopic wear debris analysis of particle colors and shapes.

Oil Insertion



Particles



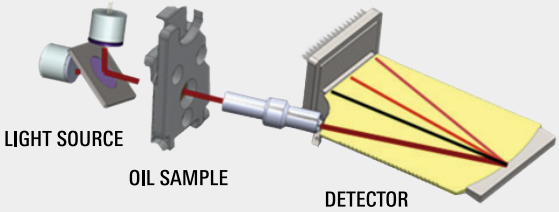
Filtergram

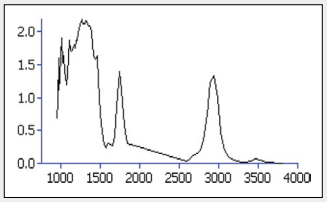
Fluid chemistry and contamination – ASTM D7889

› CHEMISTRY › WATER

The IR spectrometer measures the chemistry of the lubricant and contamination in one minute using only one drop of oil; no chemicals or solvents are required. It combines ease of use, ruggedness and laboratory precision in a small package, which is ideal for field use.

The oil condition parameters measured by FluidScan include oxidation, nitration, sulfation, anti-wear additive, Total Base Number (TBN), glycol, soot, and water for engine oil; and oxidation, Total Acid Number (TAN), and water for rotating machine lubricants such as gear oil, transmission oil and hydraulic oil.





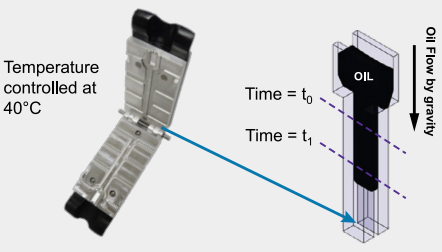
IR Spectrum

Viscosity – ASTM D8092

› VISCOSITY

Viscosity is measured using a temperature-controlled kinematic viscometer with a patented split-cell design.

A funnel, with a 100 micron gap, is formed in the center of the cell. Optical sensors in the cell detect the flow of oil under the influence of gravity. The time it takes the oil to flow through the cell is proportional to the viscosity of the oil. When open, the cells can be cleaned using a non-abrasive wipe. No solvents are required.



Kinematic Viscosity (40°C) = A* (t_1-t_0) + B

*A and B are calibration coefficients

FieldLab 58C Product Information

PRODUCT INFORMATION	
Part Numbers	800-00224 FieldLab 58C 800-00248 FieldLab 58C with TruVu 360 Pro software 100-00795 TruVu 360 Cloud Service
Applications	Mineral and synthetic lubricants including gear, engines, transmissions, hydraulics, turbine as well as military, marine and mining applications
ELEMENTAL MODULE	
Detector	25 mm^2 SDD detector; Thermoelectric cooled
Resolution	145 to 260 eV FWHM @ 5.9 keV
OPERATIONAL SPECIFICATIONS	
Sample Volume Required (all tests)	10 mL to run all 4 tests
Sample Time Required	Less than 10 minutes through all 4 tests
Ambient Operating Temperature	0° to 40°C
Operational Humidity	RH< 80% non-condensing
Ambient Altitude	Up to 5,000 meters (16,404 feet)
USER INTERFACE SPECIFICATIONS	
Display	Color touchscreen display
Data Storage	Internal flash memory, Optional USB thumb drive
Data Transfer	WiFi, Bluetooth, USB
Data Entry	Desktop software via touchscreen or optional USB keyboard
POWER REQUIREMENTS	
Battery Power Source	Lithium-ion battery pack
Charge Power	110/240 VAC, 50/60 Hz, 12 Watts
Typical Runtime	>3 hours on battery
Recharge Time	3 hours
MECHANICAL SPECIFICATIONS	
Dimensions	Instrument: 19.2 x 15.2 x 9" Instrument in transit case 27.2 x 27.5 x 16.3"
Weight	19 kg (42 lbs); 35 kg (77 lbs) in transit case

COMPLIANCE

CE conformity:LVD 2014/35/EUEMC2014/30/EU
EN 61326-1:2013
EN61000-4-2:2009
EN61000-4-3:2006 +A1 +A2
EN61000-4-4:2012
EN61000-4-5:2014
EN61000-4-6:2013
EN61000-3-2:2014
EN61000-3-3:2008 +A1:2001 +A2:2005
EN 61010-1:2010 +A1:2016
RoHS 3 EN63000-2018
IEC 61010-1
IP 54 (open)
IP 67 (closed)
UKCA Electromagnetic Compatibility Regulations 2016
UKCA Electrical Equipment (Safety) Regulations 2016
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

OUTPUTS	
Elemental Concentration (ppm)	Silicon (Si); Aluminum (Al); Chromium (Cr); Titanium (Ti); Iron (Fe); Nickel (Ni); Lead (Pb); Copper (Cu); Tin (Sn); Molybdenum (Mo); Silver (Ag); Zinc (Zn); Vanadium (V) Optional: Tungsten (W), Magnesium (Mg), Cobalt (Co)
Fluid Chemistry	TAN & TBN (mg KOH/g); Oxidation, Nitration, Sulfation (Abs/.1mm); Water (parts per million); Glycol (% by weight); Soot (% by weight); Incorrect fluid (% by weight); Antioxidant Depletion (% remaining); Antiwear Depletion (% by weight)
Viscosity	Kinematic viscosity @ 40°C Calculated viscosity @ 100°C
Particle Count	Particle count #/ml (> 4 µm) ISO Codes 4/6/14 ISO codes >6 and >14 are extrapolated
Methodology	ASTM D7889 (Chemistry) ASTM D8092 (Viscosity) ASTM D8127 (Particles : ISO 21018-3 and Elements)
Calibration	Factory, verification standards: NIST traceable verification standards provided

CONSUMABLES – FieldLab 58C (Ground)	
800-00208	FieldLab 58C Consumables Kit, 100 pk
600-00195	FieldLab 58C Consumables Kit, 500 pk
600-00189	FieldLab 58C/CA Standardization Kit
600-00209	FieldLab 58C/CA Verification Fluid

For more info visit: www.spectrosci.com/fieldlab

Spectro Scientific
AMETEK

Spectro Scientific | One Executive Drive, Suite 101, Chelmsford, MA 01824-2563 | 978-431-1120 | www.spectrosci.com |
| sales.spectrosci@ametek.com | An ISO 9001:2015 company

FieldLab58CPower_BR_2022-10-06