

## AI-60 Lab NMR System – Portable Lab NMR

### 4IR's AI-60 – a Multi-Function Total Lab Solution enabling 60MHz, High-Temperature Analysis for Laboratory and Inline Applications

4IR's AI-60 Lab NMR System's permanent magnet design requires no cryogenics as the system is powered by one standard wall outlet. Samples can be run neat, in conventional protonated solvents, or, in deuterated NMR solvents.

Probes accept standard 5 mm or 8 mm NMR tubes. Flow cell and variable temperature (up to 100°C) are also available. Complete automation of all NMR tasks (Acquisition, Processing, Integration, Results Reporting) enables walk-up applications with minimal user training and/or experience.

Spectral processing facilitates the use of a variety of chemometric based routines for multiple property measurements.

#### Main Benefits:

- Multi-property analyses with one easy-to-use system – fast, accurate, and cost-effective.
- Reaction Monitoring
- Simulation of process control/pilot
- High-temperature measurements of material properties (up to 100°C)
- Reduces time-consuming ASTM based laboratory tests
- Allows for the verification of crude oil integrity throughout shipping and receiving
- Multinuclear Capability (1H, 13C, 31P, 19F)
- Reproducible Data
- Quantitative Results

#### The system comprises four main components:

- AMOS Spectrometer (Digital, fully broad-banded)
- Magnet (60MHz 1H frequency)
- 48 Channel Active Shim Set (for unparalleled field homogeneity)
- Clean RF Chain for optimal sensitivity (SNR)

**Plus:** other accessories such as VT probe and rheology pump

## AI-60 NMR Lab System Advantages:

- **At-line analysis:**
  - Flow-through capabilities
  - Variable Temperature capability up to 140 °c
- Provides analysis in dense and opaque materials
- Direct Molecular Measurement
- Minimal maintenance required (No moving parts in sensor)
- Direct and Multi-property analysis
- No water removal necessary
- Certified for CE, TUV

4IR AI-60 NMR Lab System capabilities are proven in these applications:

- **General Purpose Lab Application Development**
  - Academic
  - Industrial Research
- **Petroleum analysis:**
  - Rapid Crude Oil Assay
  - Distillate analysis (Naphtha; Kerosene; Diesel)
  - FCC inlet (HVGO)
  - Lube Oil Analysis
- **Fish Oil production:**
  - Omega 6, Omega 3
- **Pharmaceuticals:**
  - Reaction Monitoring
  - Food and drug adulteration

**The incredible stability of our magnets, the variable temperature range, our broadband capability, and true flow capability (accurate Reaction Monitoring), are ground-breaking features that put 4IR at the forefront of the NMR field.**