



TECHNICAL DATA SHEET

RAS
Reservoir Analysis System

The Reservoir Analysis System is a multi-detector pulsed neutron system for measuring reservoir saturation using Sigma and Carbon-Oxygen techniques. The sonde features three gamma detectors - the near and far are high resolution Lanthanum Chloride for Sigma and C/O, and the long is a Sodium Iodide detector, with a spacing that is sensitive to gas and porosity.

RAS can be deployed in memory and surface readout on wireline, slickline or coiled tubing. READ's ANSA data analytics team can then map the measurements into reservoir properties such as oil saturation, porosity and rock type.

Features

- 3 detector array that includes time and energy spectra
- High resolution Lanthanum Chloride detectors
- Advanced calibration mechanisms to assure accuracy
- SRO or memory operation
- Easily and readily combinable with READ's full service portfolio of Well Integrity and Production Logging Measurements

Measurements

- Sigma
- C/O
- Oxygen activation
- Silicon activation
- Inelastic gas
- Neutron porosity
- Open hole emulation - PE, resistivity and density porosity

Applications

- Measure saturation and monitor fluid contacts in the reservoir
- Identify undesired water flow in and behind tubulars
- Open hole data emulation and rock typing
- Understand and monitor gas or water coning
- Evaluate effectiveness of gravel pack and well stimulation (acid, frac)
- Evaluate enhanced oil recovery (EOR) sweep
- Identify bypassed reserves

Benefits

- Lanthanum Chloride detectors for superior depth of investigation
- Short tool length overcomes rig up height limitations
- Slim-hole tool enabling access through well restrictions
- Flexible conveyance options through memory and SRO data acquisition



Specifications

Temperature rating	160°C (320°F)
Pressure rating	15,000 psi (103.4 MPa)
Tool diameter	1 11/16 in (43 mm)
Tool length*	140.7 in (3.57 m)
Tool weight	44 lb (20 kg)
Materials	Corrosion resistant throughout

*Compact tool length makes the RAS one of the shortest on the market and ideal for operating within rig up height restrictions.

Detector Specification

Source type	14-MeV Neutron Generator
Detector material - near and far**	LaCl3 Gamma Ray Detector
Detector material - long	Nal Gamma Ray Detector
Firing rate Sigma mode	200 µs Pulse at 500 Hz
Firing rate C/O mode	30 µs Pulse at 6.25 KHz

**Lanthanum Chloride detectors for superior depth of investigation.

Logging Measurements

Vertical resolution	24 in (610 mm)
Typical logging speed (Sigma)	10 - 20 ft/min (3 - 6 m/min)
Typical logging speed (C/O)	3 - 6 ft/min (1 - 2 m/min)
Depth of investigation (Sigma)	9 - 12 in (229 - 305 mm)
Depth of investigation (C/O)	5 - 6 in (127 - 152 mm)

