

SiCon is AbSmart's latest product line for measuring several drilling fluid properties in real time. The sensor system delivers real-time drilling fluid parameters for Density, Viscosity, % Oil, % Water, % Solids, % Low Gravity Solids and % High Gravity Solids. SiCon technology is a combination of stray field capacitance and independent simultaneous digital signal processing to provide multi-parameter outputs. It empowers the drilling team to monitor and optimize the dilution requirements, maximize the solids control efficiency and reduce the volume of waste generated, significantly lowering drilling costs.



Specifications

Models

SiCon 1b (15 psi version)
SiCon 80b (2.6k psi version)

Application

Concentrations of Oil and Water content of fluids, typically drilling mud or well production fluid

Implementation

Dielectric constant and stray field capacitance measurement through RF absorption of shifts in oscillating frequencies
Independent signal processing to produce %Oil and %Water
Typical site installation: Tank (1-inch pipe mount) or Flow-through (3-inch NPS)

Measurement Range

0 to 100.0 % for both Oil and Water concentrations

Power Requirement¹

110-240 VAC ±10%
24 VDC 300 mA (8W)

Precision / Accuracy / Performance

Precision: 0.1% Accuracy: 0.5%²
Performance (Mud): < 3% of retort output³

Output Parameters and Signals

Sensor: %Oil Conx, %Water Conx, %Solids (Total)
Full Density-Aggregated system:
Retort / Mud Rpt (>15 Params)⁴
Output Data: WITS TCP, Serial RS232

Operating Temperatures

Sensor - Process: -40 to 80°C (-40 to 176°F)⁵
Transmitter - Ambient: -40 to 80°C (-40 to 176°F)
Firmware Box - Ambient: -10 to 55°C (-14 to 131°F)

Dimensions

Sensor Head (w/ Bracket): 6"D x 6"L (16 x 16 cm)
Transmitter Box: 6" x 6.3" x 6.3" (15 x 16 x 16 cm)
Firmware Box: 10"L x 11"W x 6"H (26 x 28 x 15 cm)

Weights

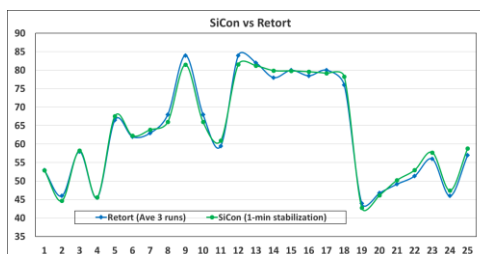
Overall (Est.): 95 lbs (43 kg)⁶
Sensor Head (w/ Bracket): 21 lbs (9.5 kg)
Transmitter Box: 9 ¼ lbs (4.2 kg)
Firmware Box: 6.6 lbs (3 kg)

Approvals / Certification

Sensor Head: I.S. ATEX EEx ia IIC T6 (CI I Div 1)
Transmitter Box: ATEX EEx d [ia] IIC T6 (CI I Div 1)
Firmware Box: UL/ULC, CE IP 66

Features

- Targeted applications include (1) drilling fluid management (2) centrifuge efficiency monitoring and control (3) multi-well production optimization



- Designed for drilling fluid (WBM, OBM, SBM) and production fluids

- Real-time Oil/Water ratio and solids analysis (LGS, HGS) enable consistent optimization of dilution economics and waste management

- Improvements in maintaining circulating fluid properties positively impact drilling performance such as ROP, MSE, directional drilling control, mud pump efficiency, ECD & hydraulics as well as torque and drag monitoring

SALINITY	BARITE DENSITY	BASE OIL DENSITY	CUTTINGS DENSITY	VISCOSITY	TEMPERATURE	AbSmart
30000	4250	780	2650	37	72	
FLUID PROPERTIES IN THE ACTIVE TANK						
O/W RATIO	% OIL	% WATER	% SOLIDS	% LGS	% HGS	% SALT
81/19	68	15	17	4.9	10.8	23.8
MUD DENSITY	[] OIL	[] WATER	[] SOLIDS	[] LGS	[] HGS	[] SALT
1320	530	150	640	131	460	50

Reduce project cost by optimizing drilling fluids dilution, maximizing solids control equipment performance and reducing overall drilling waste. An indirect benefit of this is a reduction of non-productive time.

TECHNICAL INFORMATION

NOTES: 1 – Specify AC or DC power supply requirements when ordering system 2 – Accuracy value determined using multiple variations of oil and water mixture (not drilling fluid) 3 – Averaged retort of active drilling fluid (OBM, WBM) determined using high-spec equipment (50mL cyl, 100 graduations) and following strict API drill fluid lab measurement method (sufficient heat ups, etc.) 4 – SiCon control box designed to accept Density data (analog or WITS) to produce LGS, HGS, whole mud concentrations, etc. 5 – Majority liquid phase fluids, performance guaranteed for 5-72°C (41-161°F) 6 – includes sensor head, transmitter and either typical tank (e.g., pits) or flow-through (e.g., charge pump / centrifuge) installation bracketing; control box separate module