

A quantitative representation of outflow density at surface is only truly possible when measured at the bell nipple or vertical stack section of the drilling rig.

Outflow fluid composition including gas and cuttings relative amounts given off by the formation start changing as soon as mud is exposed to atmospheric air conditions, which occurs as mud makes a turn from the vertical stack or bell nipple section into the return flow line.

When un-entrained gas begins escaping, erroneous increase in Mud Weight Out occurs. Conversely, a popularly practiced method of pumping out drilling mud from the flow line, flow divider or possum belly and passing it through a standard density sensor (e.g., 1-inch coriolis) inadvertently creates erroneous decreases in Mud Weight Out as larger cuttings are filtered out.

Using high-sensitivity special sensor probes together with smart signal filtering algorithms, Absmart ADS delivers the upstream industry's best Mud Wt Out.



Specifications

Model

ADS

Application

Density and temperature of outflow drilling fluid

Implementation

Density calculated from pressure differentials; indirect fluid temperature by diaphragm-embedded sensors

Compensation against fluid movement achieved with proprietary algorithms

Field-installable data acquisition module conditions sensor signals while allowing calibration and network or WITS settings

Sensing Range

Density: 6.2-22 ppg (0.719-2.64 g/cc)

Specific Gravity: 0.719-2.64

Temperature: 0-150 °C (0-302 °F)

Accuracy¹

Density: 0.04 ppg (0.005 g/cc)

Specific Gravity: 0.006

Temperature: 1°C (2 °F)

Installation Requirement

≥ 0.7 m (28 in) Vertical distance under return flow line
3-inch holes to weld on ADS sensor mounting adapters

Power Requirement²

18-28VDC or 100-24VDC, < 3W Consumption

Connectivity and Signals

WITS Level 0 by RS-232 Serial or TCP/IP

Analog Outputs 0-10 VDC

Operating Temperature

Sensors: -20 to 60 °C (-4 to 140 °F)

DAQ Box: -25 to 70 °C (-13 to 158 °F)

Permissible Humidity

< 96%, non-condensing

Weight

Sensors: 8 kg (18 lbs)

DAQ box: 5 kg (11 lbs)

Approvals / Certification

Sensors: IECEx Zone 0/1 Ex ia IIC T6

DAQ Box: IP 66; UL/ULC Type 2,3,4,4X,5,12,13

Features

- Volatile entrained gas still intact – allows reliably clear distinction between benign gas peaks (connection gases) vs. dangerous gas kicks
- Cuttings content accurately represented; when used together with Absmart TPA Density In, delta density delivers most cost-effective **Hole Cleaning Monitoring solution** based on actual measurements
- Once sensor mounting adapters are welded onto vertical stack or bell nipple, sensors can be replaced without any welding; sensors can be permanently removed and mounting holes capped with Cam-locks or blank flanges.