

# KickAlarm

## Real-Time Early Kick & Mud Loss Detection Service

Monitoring of the mud flow IN and OUT, mud density, and temperature are key features that help operators determine when and how to intervene during well operations. Through the use of rig feasibility studies GEOLOG is able to provide the optimal well control configuration required in challenging operating environments. **KickAlarm** service provides clients with a dedicated crew, equipment and software used to monitor and prevent well control incidents.



# GEOLOG

## Benefits

- Early intervention on mud influx and losses in real-time
- Minimizing non productive time (NPT)
- Clear real-time alerts for Driller, Company Man, and Toolpusher for swift decision making
- Accurate, continuous real-time density and temperature assessment on mud flow out
- Real-time pore gradient and Equivalent Circulating Density monitoring
- “What If” scenarios can be run to simulate how mud property changes affect the gradient
- Monitor and prevent fishing operations of bottom hole assembly due to wash outs

## Challenges and Solutions

- Accurate, quantitative and reliable flow (IN and OUT) monitoring in real-time to make informed decisions
- Avoid unplanned gains and losses in narrow mud weight margin drilling environments
- *GEOLOG personnel monitor flow IN and OUT utilizing highly accurate Electromagnetic and Coriolis flowmeters in real-time, allowing drillers to make informed decisions*
- *In Near balance conditions KickAlarm can monitor small changes in mud flows which is critical when operating in narrow margins, preventing NPT*
- *KickAlarm provides a complete service of monitoring and evaluating high risk well operations*

## Applications

KickAlarm can be deployed onshore and offshore for monitoring critical wells with oil based and water based muds. Minor flow fluctuations as low as 10 l/min can be detected with this service.

This service can also be used to detect wash out events in real-time, helping to prevent down hole fishing operations.

*KickAlarm has been effectively deployed on more than 200 wells in 30 countries around the world, onshore and offshore, including Brazil, Algeria, Italy, Russia, Norway, South Africa, Angola and France.*

*“I’ve particularly appreciated the accuracy and reliability of GEOLOG mud flow monitoring and Early Kick Detection (KickAlarm) on supporting drilling operations in terms of well control and safety.” Petrom - OMV Group*

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Figure 1. KickAlarm display.

A kick was identified using the KickAlarm service at event “A” (red curve spike). The field specialists were able to identify 0.16m<sup>3</sup> of gains in a 35 second time interval. As a result action was taken to mitigate the effects of this kick during the early stages.

Within 8 minutes the well was closed and a total gain of 1.54 m<sup>3</sup> was recorded (B). This rapid identification of a kick prevented further problems at the rig and minimized NPT.

### Specifications

	Coriolis	EM
Measured Variables	Mass Flow, Volume Flow, Temperature, Density	Volume Flow
Flow Rate Range	0-36,000 Kg/min	0 - 7,000 l/min
Flow Accuracy	+/- 0.1%	+/- 0.2%
Safety	ATEX, EN	EEx, Ex II, KEMA, EN

### GEOLOG around the World

