

REALology Intelligent Drilling Fluids Monitoring System

Vertechs REALology Intelligent Drilling Fluids Monitoring System (REALologyDR) is an API-compliant, intelligent monitoring system that provides real-time insight into drilling fluid properties. This compact, automated platform delivers continuous data on density, rheology, pH, chlorides, and temperature. With 20,000+ hours of proven performance across 130+ wells, it meets the reliability standards demanded by modern drilling teams for safer, more efficient operations.

The second-generation system delivers enhanced measurement precision and reliability, and introduces an integrated data analysis and control suite. This empowers drilling teams with:

- **Drilling Efficiency Optimization:** real-time parameter monitoring with fluid adjustment recommendations
- **Downhole Condition Modelling:** intelligent simulation of complex downhole environments with actionable response strategies
- **Well Control Risk Mitigation:** operational support and proactive alerts from influx detection through intelligent well control simulation



FEATURES

- **Fluid Compatibility:** supports both water-based (WBM) and oil-based (OBM) drilling fluids
- **Modular Design:** maximum module dimensions: $0.6 \times 0.6 \times 0.8\text{m}$, enables flexible configuration and cost-effective deployment, ideal for confined offshore platforms
- **Automated Operation:** 24/7 unmanned monitoring and control, ensuring consistent measurement reliability
- **Standardized Accuracy:** compliant with API standards, with measurement accuracy certified by CNAS (China National Accreditation Service for Conformity Assessment)
- **Smart Connectivity:** 5G and IoT-enabled for real-time remote data transmission and control
- **Risk Warning:** analytic engine provides real-time operational risk detection and decision support for optimized well control



Fig1. REALologyDR modules (left to right: Resistivity Module, Density Module, pH/Chloride Module, Rheology Module, Funnel Viscosity Module)

VERSION COMPARISON

Version	Fluids	Measured Parameters	Features
REALologyDR Lite	WBM+OBM	Density, Temperature, AV, PV, YP, n, K, 3-600rpm, Gels	Cost-effective solution for monitoring essential drilling fluid parameters
REALologyDR Pro	WBM+OBM	Density, Temperature, AV, PV, YP, n, K, 3-600rpm, Gels, Chlorides, pH	Comprehensive measurement of key drilling fluid parameters, suitable for all fluid types
REALologyDR Pro Max	WBM+OBM	Density, Temperature, AV, PV, YP, n, K, 3-600rpm, Gels, Chlorides, pH, Constant-Temperature Heating, Funnel Viscosity, Emulsion Breaking Voltage, Resistivity	Complete drilling fluid performance measurement with integrated data analysis software

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